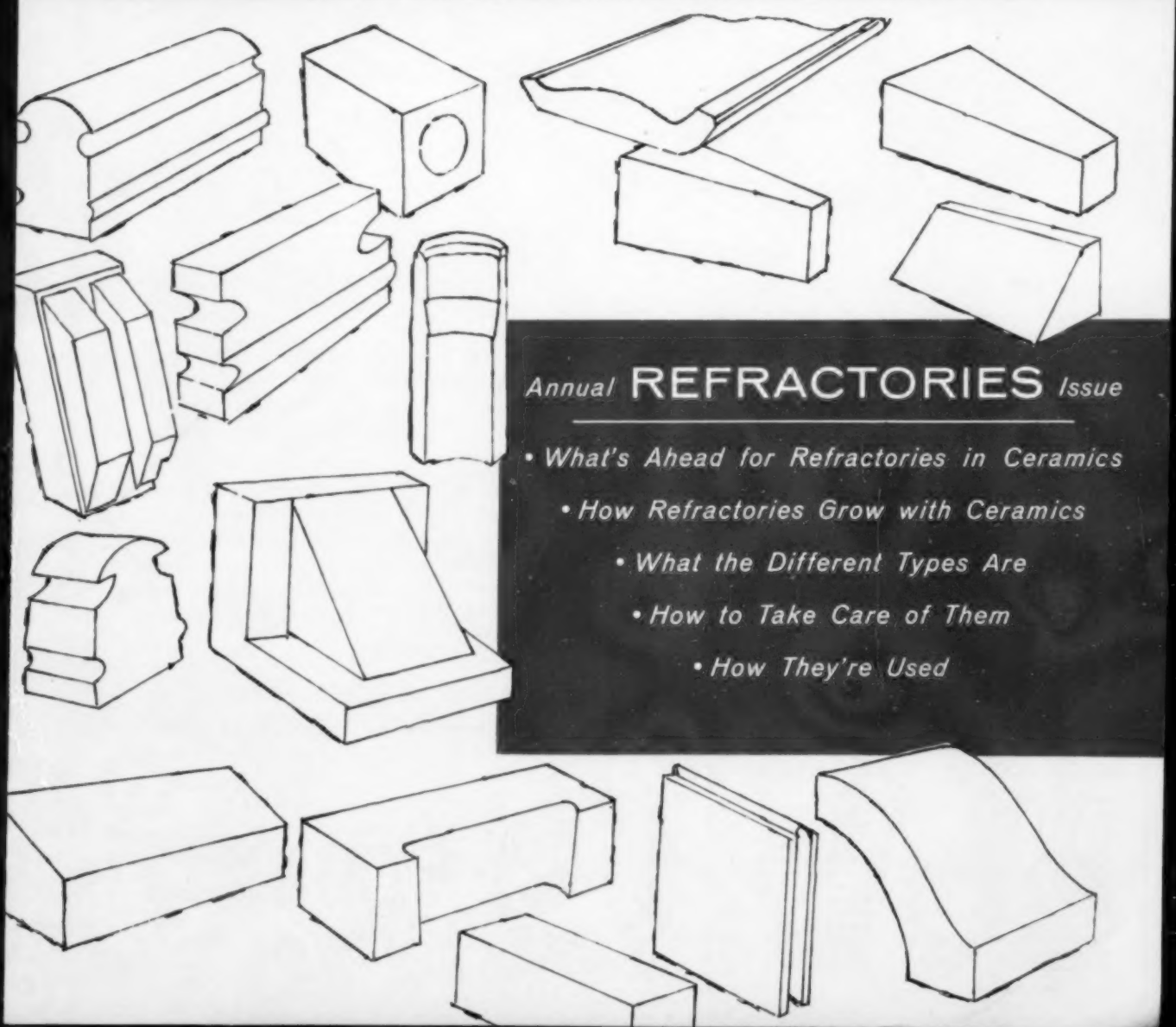
January, 1958

Brick & Clay Record

LEADING CLAY JOURNAL
OF THE WORLD

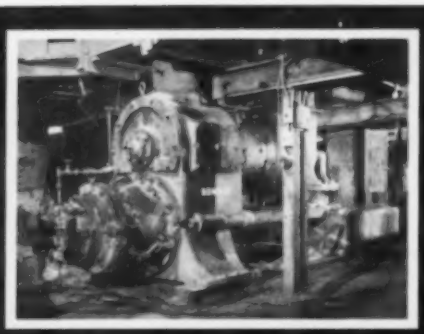
BRICK • REFRACTORIES • STRUCTURAL TILE • SEWER PIPE • DRAIN TILE • TERRA COTTA • ROOFING TILE • CLAY AGGREGATE



Annual REFRACTORIES *Issue*

- *What's Ahead for Refractories in Ceramics*
- *How Refractories Grow with Ceramics*
- *What the Different Types Are*
- *How to Take Care of Them*
- *How They're Used*

BONNOT MACHINERY" Puts More Clay into AutoCLAYmation" To Give You . . .



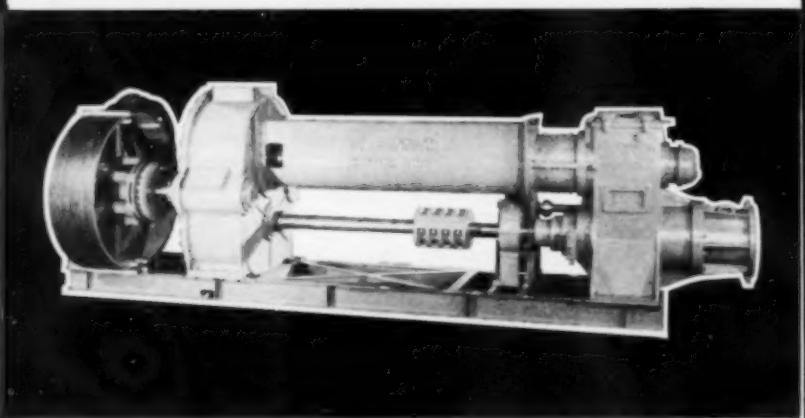
BRICK FOR AN ENTIRE CITY—45 years of continuous service by this Bonnot Special Combination Extruder at an average of 90,000 brick per day, 250 working days per year or a 1,012,250,000 total—enough to build a city of 101,250 brick homes and it's still producing profitably on regular schedule.

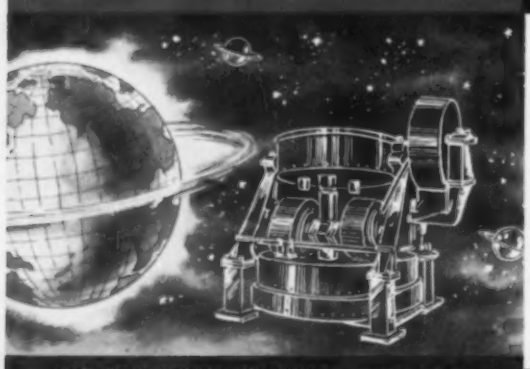
Maximum Output of Quality Products at Minimum Cost

Whatever your equipment needs — Bonnot builds a complete line of Clay-Working Machinery — precision-engineered to your individual requirements. You'll find Bonnot machines are top performers in leading plants for three reasons: (1) nearly 70 years of sound design experience; (2) superior materials and craftsmanship and, (3) clay and product-testing laboratory. Only by performance is "true-cost" measured, and Bonnot machines provide HIGHEST QUALITY at MAXIMUM PRODUCTION SPEED at LOWEST ULTIMATE COST.

IMPERIAL Typical of Bonnot production advancements and economies is the heavy-duty Imperial extruder—"top capacity design" for brick and/or hollow ware; single or twin pulley models; twice as much pugging as conventional type; better mixing of ingredients; all parts designed for easy accessibility, including cartridge-mounted bearings.

Wouldn't YOU like PERFORMANCE like this?





12½ TIMES AROUND THE GLOBE — Bonnot Dry Pan in service 50 years (and going strong to keep up with increasing demands for drain tile) produced enough tile to circle the globe 12½ times — 320,000 miles of tile!

NO "FORCED FITS": Almost 70 years of building clay-working machinery has taught us that no "standard" machine functions with equal efficiency on all jobs, due to variations in raw material and products. So, instead of "forced fits", every Bonnot machine "starts" with a preliminary study of "local needs and local conditions".

For thirty years, a Research-Development Laboratory has been operated at Bonnot's Canton plant to give special attention to problems uncovered in this preliminary engineering. Thus have come many "industry firsts" . . . including production de-airing, frictionless bearings, front-end absorption of thrust loads, off-center disc feeders, completely adjustable hydraulic cutters, and many other cost-saving ideas. Your machinery needs can benefit from this comprehensive research.

JUST SEND US YOUR SPECIAL REQUIREMENTS AND WE'LL DO THE REST . . . PROMPTLY

Bonnot's "Pre-Engineered Line" Already Includes—

AUGER MACHINES	DE-AIRING, PIPE PRESS
BALL MILLS	DIES
BRICK CUTTERS	DRY PANS
BRICK SCRATCHERS	FEEDERS, DRY
CLAY BLENDERS	FEEDERS, WET
CLAY FEEDERS	GRANULATORS
CLAY GRINDERS	HAMMER MILLS
CLAY MIXERS	MIXERS, DRY OR WET
COMBINED MACHINES	PUG MILLS, HEAVY
CRUSHERS	PUG MILLS, POTTERS
CUTTERS, MECHANICAL	PULVERIZERS
CUTTERS, RECIPROCATING	REPRESSES
CUTTERS, ROTARY	ROTARY DRYERS
DE-AIRING, POTTERY	TILE CUTTERS
DE-AIRING, BRICK & TILE	TUBE MILLS
DE-AIRING, REFRACTORIES	WET PANS

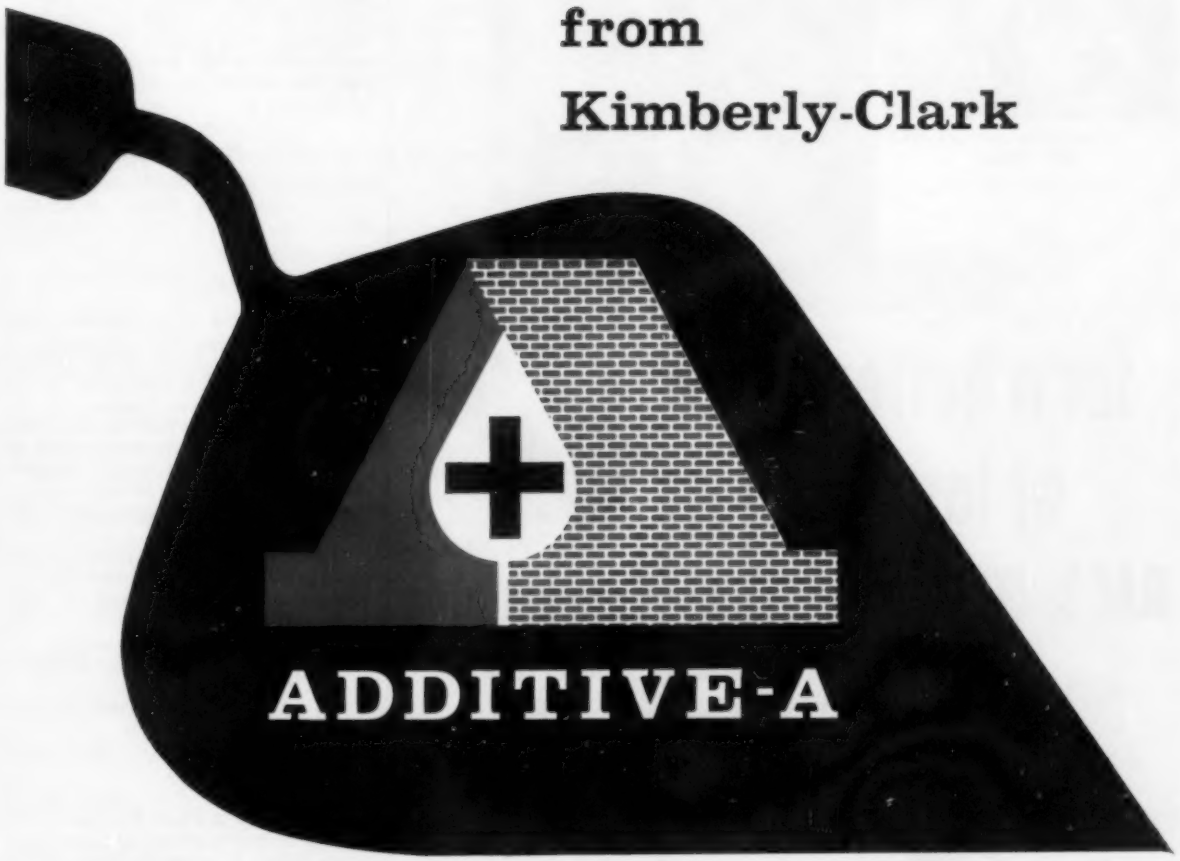
STEP AHEAD WITH BONNOT

The **BONNOT** Co.

CANTON 2, OHIO

How to cut damage—expedite handling

Increase wet green strength with Additive-A from Kimberly-Clark



Where tight control of several variables means better bricks, increasing wet green plastic strength is vital. This greater strength together with improved plasticity is readily achieved by adding Kimberly-Clark's Additive-A to the tempering water.

Here's what Additive-A—new, multi-purpose clay improver—will do for you: Increase green plastic strength • Permit reduction of tempering water • Cut dryer loss • Reduce laminations • Improve workability of the clay • Increase dry green strength • Permit more even temper • Extend life of augers, knives, dies and liners • Control scumming • Upgrade quality of all ware.

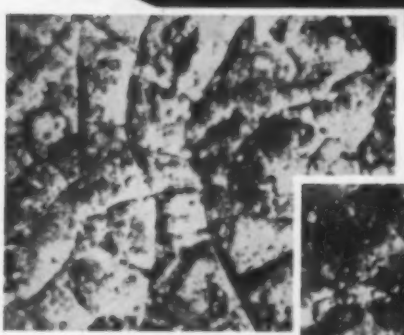
Write for descriptive folder, to:

Kimberly-Clark Corporation • NEENAH, WISCONSIN

CHEMICAL PRODUCTS DIVISION

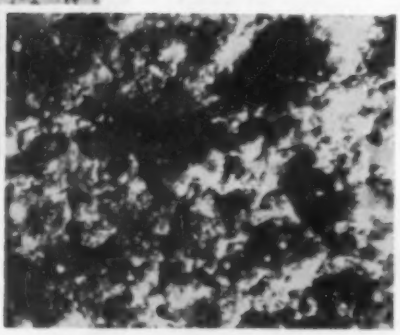
"Brick & Clay Record is published monthly by Industrial Publications, Inc., 5 S. Wabash, Chicago 3, Ill. Subscription price: U. S. A. and Canada, $5.00 per year; three years, $10.00; Foreign subscription price: $7.00 per year; three years, 15.00. Vol. 132, No. 1. Entered as Second Class Matter January 2, 1911, at the Post Office at Chicago, Ill., under the Act of March 3, 1879. Additional entry at Pontiac, Ill."

Compare these glazes



GLAZED WITH 100% SALT
BADLY CRAZED

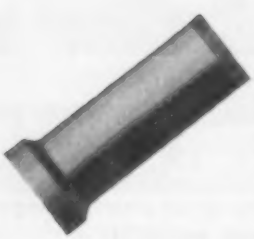
Here's proof of what a borate-salt mixture can do for your ware!



GLAZED WITH 10% BORATE–90% SALT

for a better glaze at less cost...

RASORITE® Sodium Borate Concentrates



Improve your salt glaze, lower your costs—it's easy with RASORITE! This product is cheaper than either Borax or Boric Acid, yet it gives equally fine results. Use RASORITE to make your glazes more durable, more impervious to liquids, more uniformly free of crazing. Get the benefits of a borate-salt mixture—in lowered fuel costs, increased production and profits. Write today for details and technical data sheets.

MANUFACTURERS OF FAMOUS "20 MULE TEAM" PACKAGE PRODUCTS

United States Borax & Chemical Corporation

PACIFIC COAST BORAX COMPANY DIVISION

50 Rockefeller Plaza, New York 20 630 Shatto Place, Los Angeles 5

LETTERS To the Editor

Belden

Editor, BRICK & CLAY RECORD—In our German journal, "Die Ziegelindustrie," we read about an article "Goes Modern With Tunnel Kiln Plant," published in . . . October, 1956. We would be much obliged if you would send us either the complete issue or only this article, as we are highly interested in it.

Karl Handle & Sohne
Muhlacker, Germany.

Ed. Note: The desired copy of this article about the Belden plant has been sent.

Tunnel Kiln Info

Editor, BRICK & CLAY RECORD — We are seeking information and technical data on the subject of a tunnel-furnace for bricks and tiles. Up to the present we have treated our ceramics on an open field furnace. We are now examining the possibilities of a tunnel-furnace and would be much obliged if you would kindly send us copies of your periodicals on this subject.

We are naturally interested in the experience of users of this type of furnace as well as methods of construction and operation.

Vivien, Ingenieur
Molanda en Mongala
Par Lisala
Belgian Congo,
Africa

Likes Cover

Editor, BRICK & CLAY RECORD—First of all, congratulations on your new cover design. It certainly makes BRICK & CLAY RECORD look modern from the outside, and I presume you also are figuring on some modernization of the inside pages.

Ted Witter
Ted Witter Advertising Agency
Canton, Ohio

Ed. Note: We'd like to thank Witter for the comments on the new cover. All of this is actually just part of a continuing modernization of B&CR which continues, large or small, month by month. Readers will note this month, and month's to come, more changes, all designed to keep the book modern and intended to increase the value to the reader.

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Brick & Clay Record

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5 SUPERLITE UNLOADERS

SERVE GUIGNARD BRICK WORKS COLUMBIA, S. C. with

FAST-GENTLE HANDLING!

MILLIONS OF BRICK DELIVERED EVERY DAY THE SUPERLITE WAY

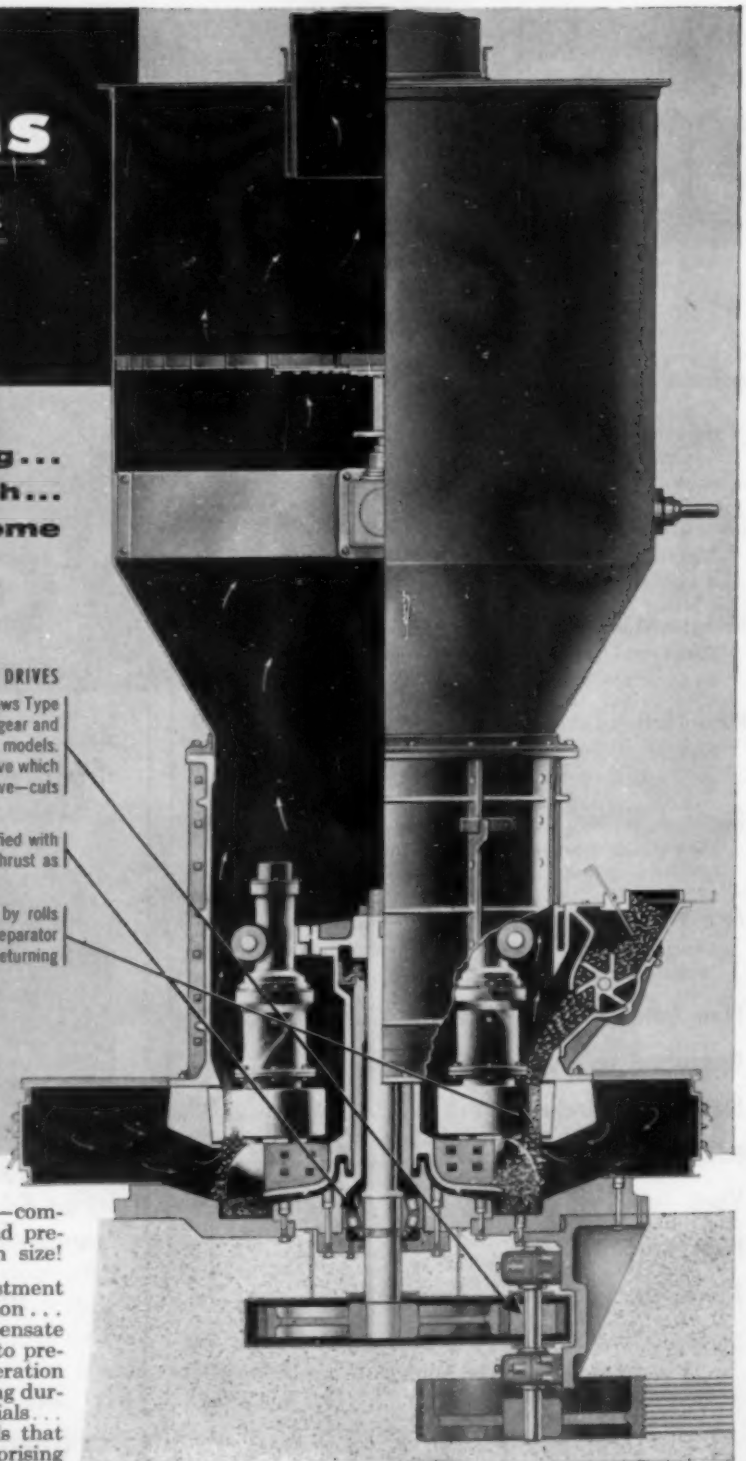
HUNDREDS OF REPEAT PURCHASERS

MEET COMPETITION BEAT COMPETITION WITH SUPERLITE UNLOADERS

Write, Telephone or Wire

BUILDERS EQUIPMENT CO.
3810 N. Central Ave.
Phoenix, Arizona

WILLIAMS ROLLER MILLS



- **Quality Fine Grinding... 20 Mesh To 400 Mesh... Micron Sizes On Some Materials**

EXCLUSIVE GEARLESS AND SPUR GEAR DRIVES

Another Williams advancement! Cutaway shows Type D Mill with Spinner Air Separator with spur gear and pinion drive used on Standard and larger models. Smaller sizes have simple gearless V-belt drive which is easier to maintain than bevel gear drive—cuts labor and downtime.

Bearing alignment of central shaft is simplified with only 2 bearings, the bottom one carrying thrust as well as radical load.

NOTE FLOW OF MATERIAL being ground by rolls rotating against bull ring, then air-swept to separator which discharges finished product while returning coarse tailings for regrinding.

From raw material to finished product—completely automatic grinding, blending and precision classifying to 20 mesh or micron size!

Self-adjusting feed rate . . . instant adjustment for sizing, even while mill is in motion . . . continuous automatic take-up to compensate for wear . . . constant rising air current to prevent build-up of fines and inefficient operation . . . automatically controlled hot-air drying during grinding of moisture-carrying materials . . . all are features of Williams Roller Mills that virtually guarantee increased output, surprising cost reductions and exceptionally high uniform quality. Get all the facts immediately . . . *Write today for catalog.*

WILLIAMS PATENT CRUSHER & PULVERIZER CO.

2709 N. BROADWAY St. Louis 6, Mo.

WILLIAMS

CRUSHERS GRINDERS SHREDDERS

Oldest and Largest Manufacturers of Hammer Mills in the World

An important message for manufacturers of glazed brick

Architects in increasing number are writing deeply tinted and pastel colored glazed brick into their specifications for commercial buildings as well as residential structures.

As every brick manufacturer knows, this trend imposes new and different problems on production. Their solution is clearly not within the scope of normal day-to-day operations. Clays, methods and equipment vary so widely in various plants, the basic techniques of applying colored glazes must be adapted to each situation. Equally important, color formulation must be compatible with conditions and the characteristics of the brick itself.

For many years, Drakenfeld has supplied the industry with high-quality engobe stains and glaze stains. Today our "know how" can be particularly helpful to brick manufacturers in meeting the challenge of growing demand for glazed brick in a wide range of colors. Now more than ever before our complete research, color processing facilities and service can assist you in producing modern, colorful glazed brick economically and selling it profitably.

We invite you to call in one of our field engineers for a discussion of our cooperation in color research and application and our ability to serve you.

Drakenfeld

YOUR PARTNER IN SOLVING COLOR PROBLEMS

B. F. DRAKENFELD & CO., INC.

Executive Offices: 45 Park Place, New York 7, N. Y.

Factory and Laboratories: Washington, Pa.

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BRAUN CORPORATION, 1363 So. Bonnie Beach Place, Los Angeles 54, California—Phone: ANgelus 9-9311 • BRAUN-KNECHT-HEIMANN COMPANY, 1400 Sixteenth St., San Francisco 19, California—Phone: HEmlock 1-6800

B&CR's 1958 all NEW BLUE BOOK

BRICK & CLAY RECORD

BRICK & CLAY RECORD'S
April Convention Issue

BLUE Print for Better Operation — This issue will carry more than a hundred quick, cost-saving ideas for operating personnel.

BLUE Ribbon Clay Products Plants — Will be "toured in print." You'll read of clay pipe, refractories, brick, tile and lightweight aggregate production in complete, accurate stories.

BLUE Chip Advertisers — The bluebloods among suppliers of materials and equipment will have dominant advertising in the New BLUE BOOK. This is THE advertising issue of the year.

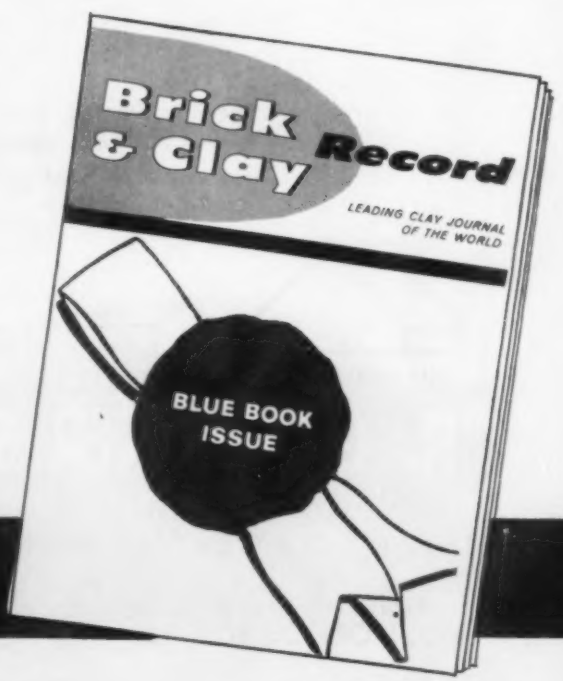
Where True BLUE Conventioneers (and stay-at-homes too) look for and find the latest and best information on this industry.

5 BIG CONVENTION SERVICES

1. **DIRECTORY BOARD OF SUPPLIERS** . . . Tells conventioneers where they can locate suppliers. (Suppliers please register.)
2. **EXTRA COPIES** of the April "Blue Book" are distributed at the Directory Board and elsewhere around the convention — added effective circulation for advertisers.
3. **CONTACTS** between suppliers and those in the industry will be gladly arranged by BRICK & CLAY RECORD'S convention staff.
4. **CONSULTATION** with B&CR's engineering staff is always welcome. They're well versed in every phase of the industry.
5. **EASELS** for advertisers' rooms with proofs of B&CR ads will be available. Please let us know your needs before convention time.

First Closing: March 20

Final Closing: March 27



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PREFABRICATED Pipe STRUCTURES

FOR THE BRICK AND TILE INDUSTRY

Plant Installation for Cloud Ceramics, Concordia, Kansas

Speedily Erected, Our Construction is Completely Flexible Adapted to Your Individual Needs

Ask Any of Our Satisfied Customers

CLAY STORAGE SHEDS KILN BUILDINGS MACHINE BUILDINGS STOCK SHEDS GRINDING ROOMS

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PIPE FABRICATORS • STEEL PRODUCTS

PINE BLUFF, ARKANSAS

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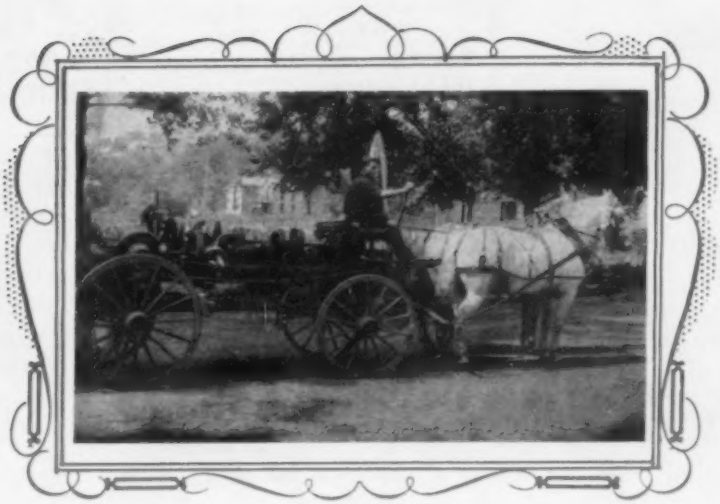
From Horse and Wagon Days...



Note the muller hubs and mine car wheels

TORONTO **People Have Been Serving the Clay Industry!**

L-R George Aldridge, Paul Byers, Guy Francy, Donna Hayes, Don O'tool, Elmer Francy, Bill Podwell.

The

Toronto Foundry & Machine Co.

ENGINEERS ★ FOUNDERS ★ MACHINISTS

TORONTO, OHIO

Builders of TORONTO *Equipment*

1948
FRONT PALLET FEED

1951
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SCHOOL FOR BLOCK MAKERS

1953
AUTOMATIC LUBRICATION

1954
100% PRESSED TOP U.P.T.

1955
AUTOMATIC HEIGHT & DENSITY CONTROL

1956
AUTOMATIC FEED CONTROL

1957
AUTOMATIC LOADING AND UNLOADING

1958
AUTOMATIC BLOCK CUBING

Progress

THROUGH THE YEARS

As the months and years of your calendar unfold, Besser Company is constantly converting new ideas into modern machinery and equipment for improving the quality and production of concrete block . . . *in a never ending march of progress.*

If you want information on the latest in block making . . . block handling . . . and block selling . . . we suggest you come to Room 107, Sherman Hotel, Besser Company Headquarters during the NCMA Convention.

You are cordially invited to visit

BESSER HEADQUARTERS

at the

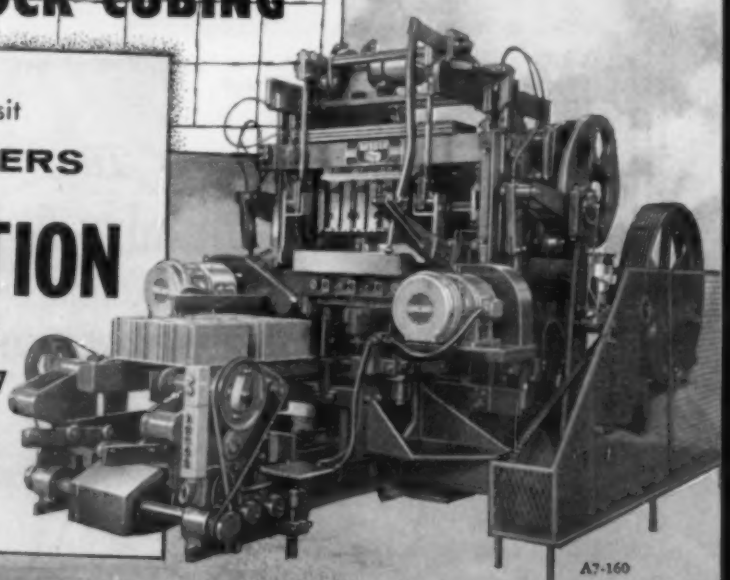
NCMA CONVENTION

February 17-18-19, 1958

SHERMAN HOTEL CHICAGO, ROOM 107

BESSER Company

ALPENA, MICHIGAN, U. S. A.



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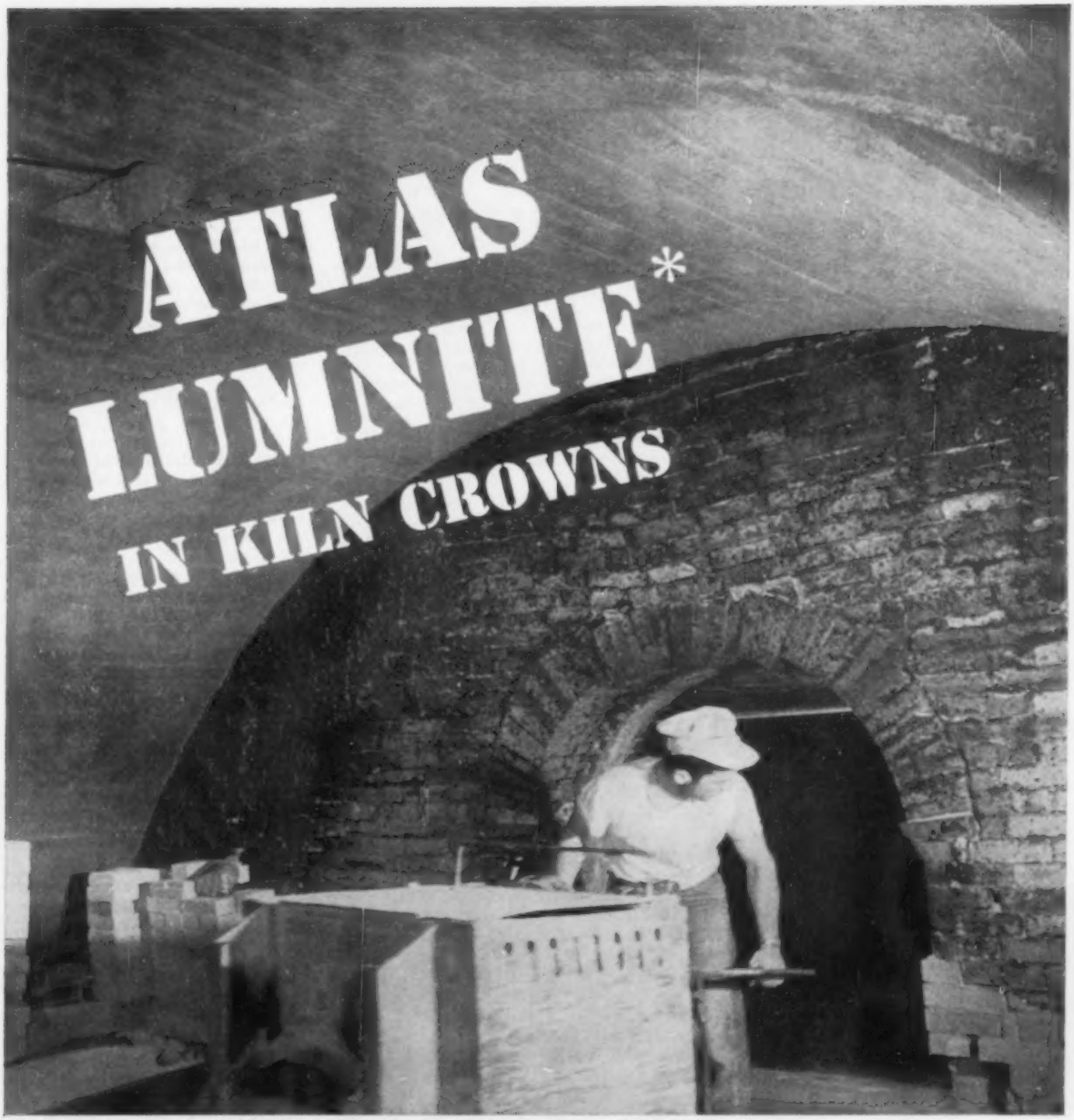


INSTALLATION: refractory concrete kiln crown, made with LUMNITE cement, in good condition after 2 years' service. **LOCATION:** Mount Savage Refractories Co., Mount Savage, Md.

- Smooth, jointless refractory concrete crowns keep heat in, reduce fuel costs, require little maintenance.
- Refractory concrete, made with LUMNITE cement, offers greater resistance to thermal shock, withstands high temperatures.
- Placement is fast and easy – by pouring, plastering or guniting. Service strength is reached within 24 hours. Ideal for fast repairs, too.

For maximum convenience, use castables made with LUMNITE cement. These are packaged mixtures, ready for use. Just add water, mix and place. Made and distributed by leading manufacturers of refractories.

For more information, write: Universal Atlas, 100 Park Avenue, New York 17, N. Y.

"LUMNITE" is the registered trademark of the calcium-aluminate cement manufactured by Universal Atlas Cement Company

L-164

UNIVERSAL ATLAS CEMENTS

USS TRADE-MARK

UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—**UNITED STATES STEEL**

OFFICES: *Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco*

Materials Equipment Services

EXCAVATORS — Old Virginia Brick Co. of Salem, Va., depends on a ¾-yd. 22-B shovel to load clay at a mountainside pit. The operator reports it is the "Fastest and easiest shovel to operate . . . when night comes now, I'm never tired." The 22-B features balanced speed and power, with constant responses from clutches and brakes that allows for smooth operation. Bycyrus-Erie Co., South Milwaukee, Wis.
150/Circle on Reader's Service Coupon

TRACTORS—The announced redesign of the HD-21 Tractor is reported to be more efficient and has greater dependability on a wide range of stripping and maintenance jobs. Features include a new 225-net hp turbo engine. A new weight—45,500 lb. (bore). New power train and torque converter, and longer track for matched traction, and is easily operated with work-saving decelerator. Allis-Chalmers, Construction Mch. Div., Milwaukee, Wis.
151/Circle on Reader's Service Coupon

POLY-V DRIVE—A totally new concept of power transmission is claimed to deliver up to 50% more power than a conventional V-belt drive of equal width. A single-endless belt with parallel v-ribs runs on sheaves specially designed to mate precisely with belt ribs, giving uniform pull, even load drive over the full sheave width. R/M Poly-V belts have eliminated the matching problems of multiple V-belt drives. Raybestos-Manhattan, Inc., Passaic, N. J. will supply further information.
152/Circle on Reader's Service Coupon

CRAWLER — Koehring 605 has been stripping clay and shale 18 hours a day on one location. Boom lengths on this model range from 50 to 100 feet, drag buckets from 1½ to 2½ cu. yds. Koehring Co., Milwaukee 16, Wis.
153/Circle on Reader's Service Coupon

ENGINEERED AIR HANDLING—to correctly apply fan equipment is offered by Robinson. Get the right fan to do the right job—volume-wise, pressure-wise, construction-wise. Robinson Ventilating Co., Zelienople, Pa.
154/Circle on Reader's Service Coupon

BUILDINGS — Prefabricated pipe kiln buildings, storage buildings, and grinding buildings with steel, aluminum or asbestos covering according to your specifications are offered by Southern Fabricating Inc., Box 97, Staley, N.C.
155/Circle on Reader's Service Coupon

SCREENS—Modern and efficient electric heating equipment. Facts on Universal screens and Unilec heating are available in Catalog No. 150. Universal Vibrating Screen Co., Racine, Wisc.
156/Circle on Reader's Service Coupon

ROCKFACER—Claimed to pay for itself in 90 days, Rockfacer chips a straight edge on your brick, eliminating hammer-and-chisel methods. Machine is said to average 1250 brick per hour. Send a sample of your brick and have it Rockfaced. Rockfacer Co., 503 Hickory Tree Rd., P.O. Box 547, Mesquite, Tex.
157/Circle on Reader's Service Coupon

VIBRATORY FEEDERS—Control your feed rates, matching the efficiency of screens, driers, shredders, mullers and pug mills. Get smooth, even material flow. Electromagnetic principle confines all movement to leaf spring. Syntron Co., 620 Lexington Ave., Homer City, Pa.
158/Circle on Reader's Service Coupon

MOTORS—One to 600 H.P., A.C. Fast delivery of all popular models from the company's warehouses is claimed by Brook Motor Corp., who have been in the motor business for over 50 years. Brook Motor Corp., 3553 W. Peterson Ave., Chicago 45, Ill.
159/Circle on Reader's Service Coupon

CONSTRUCTION NEWS — Advance information about new projects helps you know what's being built, who to contact, when the job is out for bids, and who's bidding. Pick the type of job you want. Dodge Reports, Dept. 45, 119 W. 40th St., N.Y.C. 18.
160/Circle on Reader's Service Coupon

BRICK FORKS — Priester forks are handling brick in units of all sizes, emphasizing automatic operation. For cored and solid brick, forks come with flap grippers. Bradney Machine Co. Inc., Middletown, N.Y.
161/Circle on Reader's Service Coupon

KILN CAR WHEELS — Henderson Clay Products of Henderson, Tex., reports praise for Sanford-Day wheels and bearings. S-D's "Floater" wheel is claimed to remain in perfect alignment, needing no adjustment once bearing nut is tight. Enclosed outer hubs and protected inner hubs reportedly eliminate dust, retain lubricant. Sanford-Day, Knoxville, Tenn.
162/Circle on Reader's Service Coupon

CAR TOPS—Paco claims 9 out of 10 users of their car tops are satisfied customers, and that all report replacement savings up to 50%. North State Pyrophyllite Co., Inc., Greensboro, N.C.
163/Circle on Reader's Service Coupon

STOKERS—by Canton reportedly reduce fueling labor costs with less manual firing effort, lower fuel bills by high-efficiency combustion of cheaper grades of coal, produce cleaner operation by eliminating 95% of the smoke nuisance, and improve kiln operation by making firing cycles more uniform and requiring less firing per cycle. Canton Stoker Corp., Canton, Ohio.
164/Circle on Reader's Service Coupon

TILE GLAZES—Recent tests show that ceramists can reduce the mill addition by as much as 25% and still retain reflectance values comparable to the opacifier they were using with Superpax A for wall tile sanitary ware glazes. Titanium Alloy Mfg. Div., Nat'l Lead Co., 111 Broadway, New York City.
165/Circle on Reader's Service Coupon

LOW COST CRUSHING—with better product control is offered in the Williams Reversible Impactor. No grates are required; quick, uniform reduction, sizing, and discharge from the mill eliminates any grinding attrition action that causes excessive wear, especially with abrasive materials. Reversible rotation eliminates manual turning of hammers and minimizes down time. Williams Patent Crusher & Pulverizer Co., 2709 N. Broadway, St. Louis 6, Mo.
166/Circle on Reader's Service Coupon

INSULATING FIREBRICK—From 18 to 30% fuel savings have been reported with use of B&W insulating firebrick. A glazed sewer tile plant with seven 32' diameter coal fired circular kilns reported a 30% fuel saving; a building brick plant with four 28' coal fired kilns reported a 26% saving. Babcock & Wilcox Co., Refractories Div., New York 17, N. Y.
167/Circle on Reader's Service Coupon

LUBRICANT—Kiln car bearings are lubricated at temperatures up to 1200 F. Belco #5016 Grease is guaranteed not to carbonize, does not harden, forms no decomposition products, eliminates dripping on tracks, cuts down pusher ram pressures, and prevents bumper damage. Bel-Ray Co., Inc., Madison, N. J.
168/Circle on Reader's Service Coupon

FORK TRUCKS—A new line of pneumatic-tired gas fork trucks has been introduced by Baker. Model FGF-40, 4,000 lb. Yardloader features power steering, single or dual wheels and full 130 inch lift with single or dual cylinder. Baker-Raulang Co., 1271 W. 80th St., Cleveland 2, Ohio.
169/Circle on Reader's Service Coupon

PAYLOADER—Has bucket sizes from 14 cu. ft. to 2¼ cu. yd. which can be tipped back, lifted and dumped by one lever. Floor sweeper, fork-lift and pusher-fork attachments are available. Frank G. Hough Co., Libertyville, Ill.
170/Circle on Reader's Service Coupon

PALLET CLEANERS — Besser says their pallet cleaners do not warp or nick pallets. Machine compensates automatically for differences in pallet thickness, gets down to bare steel. Cleans up to 300 pallets per hour. Bulletin 101. Besser Company, Alpena, Michigan.
171/Circle on Reader's Service Coupon

HAMMERMILLS—If you have a crushing problem, American's engineering department will be happy to analyze your reduction trouble, make test runs if necessary, and offer specific recommendations — at no obligation to you. American Pulverizer Co., 1061 Macklind Ave., St. Louis 10, Mo.
172/Circle on Reader's Service Coupon

LOADERS — International's Drott claims to apply hydraulic force to full piston face instead of just the rod-end area, have greater leverage, and ground-based fixed fulcrum. Company says this adds up to heavy duty loader design that "separates the men from the boys." International Harvester Co., Drott Mfg. Corp., Milwaukee 15, Wisc.
173/Circle on Reader's Service Coupon

V-BELTS—Gates claims you can cut sheave width and weight by using their Super Vulco Drives. Company says 5 of their ropes will do the work of 7 standard V-belts; that inner resilient cords give 40% more HP capacity. Gates Rubber Co., Denver, Colo.
174/Circle on Reader's Service Coupon

MAXIMULLER — has revolving pan with screen plates in the pan bottom, with large mullers, widely spaced for greater crushing effect. Bulletin B-53. Clearfield Machine Co., Clearfield, Pa.
175/Circle on Reader's Service Coupon

COMBINED MACHINES — Model 60F combines the compactness of a combined de-airing machine with the convenience of separate drives. Double geared drives for both extrusion and pugging (in 11" x 30" ID open pugmill). Claimed to give 100,000 to 140,000 brick per 8-hour day J. C. Steele & Sons, Statesville, N.C.
176/Circle on Reader's Service Coupon

PLANT DESIGN—Hendryx designs face brick, sewer pipe and refractories plants as well as dryers, tunnel kilns and general improvements. Dwight B. Hendryx and Assoc., 6621 Darlington Rd., Pittsburgh 17, Pa.
177/Circle on Reader's Service Coupon

VIBRATORS—Air or electric, portable or permanent, silent or standard Cleveland has vibrators they claim will help you handle sand, clay or refractories. Cleveland Vibrator Co., 2872 Clinton Ave., Cleveland 13, Ohio.
178/Circle on Reader's Service Coupon

TOOL STEEL — High vanadium (4½%) tool steel is used in liners, die plates, brand plates, regrinding service, liner holders, mold boxes, pads, shims and flat ground tool steel. Alcon Production Tool Co., 579 Baird St., Akron 11, Ohio.
179/Circle on Reader's Service Coupon

GLAZE STAINS—New 600 series chrome alumina pinks are said to have been improved for purer colors without "brown spots." Low initial cost and stability to Cone 12 are claimed. The 4000 series consists of zirconium-vanadium yellows, greens, and blues. Vitro Mfg. Co., 60 Greenway Dr., Pittsburgh 4, Pa.
180/Circle on Reader's Service Coupon

TRACTOR SHOVELS—The first Michigan Tractor Shovel Model 75A built is still in operation. The machine has put in 10,000 working hours, moving an average of 60,000 pounds per hour. Repair costs have been $700 for three years. Clark Equipment Co., 2455 Pipestone Rd., Benton Harbor 18, Mich.
181/Circle on Reader's Service Coupon

REAR DUMPS—At a German limestone quarry, two Model C Tournapulls are reported to haul about 180 tons of rock each working hour. Bowl design tends to deflect loading shocks, and load to 85-90% of capacity while box-shaped bodies stopped at 70%. LeTourneau-Westinghouse Co., Peoria, Ill.
182/Circle on Reader's Service Coupon

How to Get Rush Information

If you want further information or literature describing the products in this special feature, just use the handy card you will find on page 18. Our Reader's Service Dept. will see that you obtain the requested information as quickly as possible.

COLORS—Glaze stains in brilliant shades and pastels in a wide color range and stable at high temperature are offered by Drakenfeld. Strong, uniform body or engobe stains for colored bodies for slip application also come in many shades. B. F. Drakenfeld & Co., 45 Park Pl., N.Y.C. 7.
183/Circle on Reader's Service Coupon

HEAT MEASUREMENT — Bell Fire-Chek Keys placed in various parts of the kiln shrink due to the heat, not the atmosphere of kiln, indicating the effect of the temperature on clay. Accurate measurement is possible with Bell's gauge. Bell Research Inc., E. Liverpool, Ohio.
184/Circle on Reader's Service Coupon

POWER CYLINDERS—Over 100 factory trained, experienced engineers are at your service to help you fill your air and hydraulic cylinder needs. Miller Fluid Power Div., Flick-Reedy Corp., 2013 N. Hawthorne Ave., Melrose Park, Ill.
185/Circle on Reader's Service Coupon

GLAZED BRICK & TILE—Hommel glaze frits and body, engobe and glaze stains are made to meet all requirements, with wide firing range and stability at high fires. Dept. BCR-757 The O. Hommel Co., Pittsburgh 30, Pa.
186/Circle on Reader's Service Coupon

LIFT TRUCKS—Harbison-Walker Refractories of Pittsburgh has reportedly saved many time-consuming operations with 9 Hyster lift trucks—replacing such hand operations as hauling brick from drying tunnel to kiln, returning empty racks to plant, and delivering bricks for inspection and storage. Hyster Co., Portland Oregon.
187/Circle on Reader's Service Coupon

COMBINED MACHINES—No. 404-A is a medium capacity model that is reported to be capable of pugging, de-airing, and extruding every type of brick, block and tile, all in a single operation. American Clay Machinery Div. of Huber-Warco Co., Marion, Ohio.
188/Circle on Reader's Service Coupon

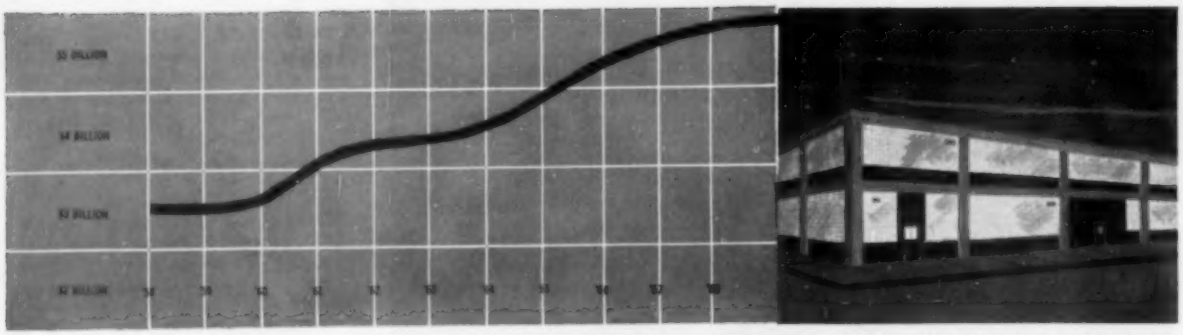
HAMMERMILLS—Williams claims: finish grinds bank run clay and shale in a single operation—including hard lime particles, iron pebbles, tailing of all kinds. Company says 75% of capital investment is saved by eliminating primary or secondary crushers, and 50% of production costs. Williams Patent Crusher & Pulverizer Co., 2709 N. Broadway, St. Louis 6, Mo.
189/Circle on Reader's Service Coupon

SEWER PIPE GLAZES—Pemco offers to take pieces of your dried unfired clay pipe and tailor a glaze for your sewer pipe. Why ceramic glazing? Pemco says it lowers fuel costs, increases refractory life, speeds production, and gives a product with greater sales potential. Pemco Corp., Customer Service Dept., Baltimore 24, Md.
190/Circle on Reader's Service Coupon

SCREEN PLATES — and grate bars by Mallix are made from a specially heat-treated material. Tough, but not brittle, they are said to stand up under severe service without breaking. National Malleable and Steel Casting Co., Cleveland 6, Ohio.
191/Circle on Reader's Service Coupon

HYDRAULIC DRILLS — Parmanco Model HV-172 vertical drill has 65 HP motor, finger-tip control, four-speed auger and Timken bearings. Company says samples can be obtained up to 100 feet deep in minutes. Paris Manufacturing Co., Paris, Ill.
192/Circle on Reader's Service Coupon

BRICK FORKS—Bickerstaff offers to supply detailed information on the use of Bickerstaff forks for mechanical setting of kilns—without obligation. Bickerstaff, Inc., Columbus, Ga.
193/Circle on Reader's Service Coupon



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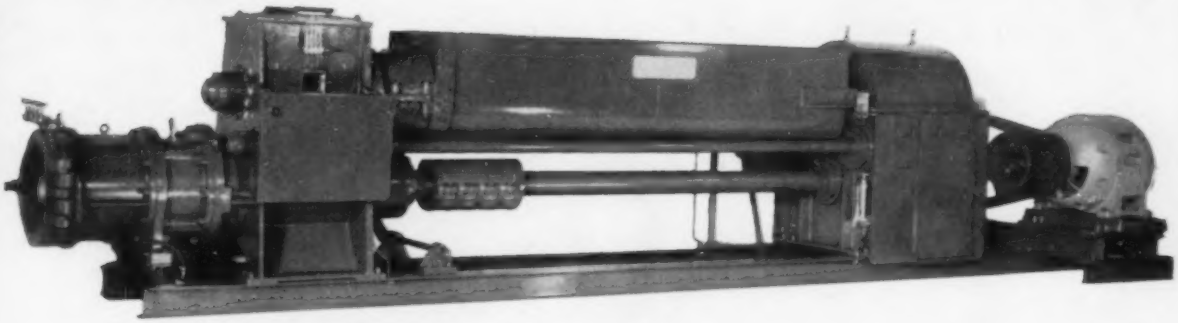


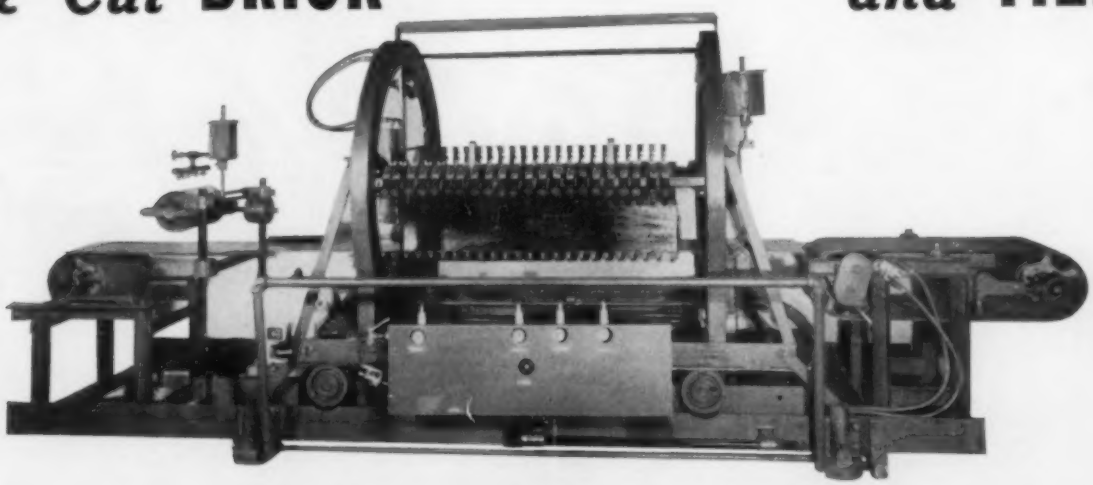
New No. 12 AC BRICK MACHINE

Hi-Power model, up to 300 HP, combines all-steel construction and generous use of alloy materials to match today's brick and hollow tile standards with safety factors provided for tomorrow's more exacting extrusion problems. 18¾" auger, fed by 21" augers in vacuum case; 12' pug mill tub.

No. 30 Series CUTTER

Four models of the #30 series, each available in length up to 5 12-in. cuts, are becoming nationally recognized as providing either maximum accuracy or high-speed bar cutting beyond the range of other machines. Quick-change platen assemblies and conveyor tailored to your exact requirements.

& Cut BRICK *and* TILE



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NEW equipment

THE LATEST IN SUPPLIER DEVELOPMENTS

Hydraulic Kiln Pusher

A hydraulic kiln pushing unit that pushes kiln cars through tunnel kilns at a pre-determined constant speed has recently been developed by Pearne & Lacy. The basic unit consists of a welded steel tank with a flush mounted oil level gauge on the front, and emergency pumps on the side. Rigidly supported from the cover plate, the adjustable displacement pump is connected to a vari-drive motor by means of a connecting rod and an eccentric head. Hose and couple fittings are connected hydraulically to the control valve. Units operate with 4-in. to 10-in. cylinders, speed of the motor and pump permits a speed variation of 13.5 to 1. Pearne & Lacy Machine Co., Los Angeles, Calif.

194/Circle on Reader's Service Coupon

Turnapull Rear Dump

A new low silhouette version of the 11-ton model D Tournapull Rear Dump has been built specially designed for particular operations where clearance and maneuverability are important. The unit's height is 8′ 11″ while hauling and 11′ 8½″ in dump position. A new feature along with overall height reduction is a unique "squat" feature which permits lowering of the dump to provide a loading height of only 65″. The new Lo dump "D" maneuvers easily making complete 180° turns in less than its own length. Full information can be had from LeTourneau-Westinghouse Co., Peoria, Ill.

195/Circle on Reader's Service Coupon

Potentiometer Recorder

This strip chart recorder is entirely free of vacuum tubes and is stated to operate without warm-up, but is sensitive and accurate. Automatic standardization, thermocouple break protection, cold junction compensation, chart tear-off strip, adjustable chart speeds without changing gears, battery condition indicator. The "Marksman" thermocouple will record any variable that can be transformed into an electric signal through transducers —strain, pH, temperature, pressure, etc. It operates at 115,208 or 230 volts and requires no additional transformers. It fits any standard 19-inch relay rack, flush or surface mounted. For further information, ask for Bulletin M from West Instrument Sorp., Chicago 41, Ill.

196/Circle on Reader's Service Coupon

Conveyor

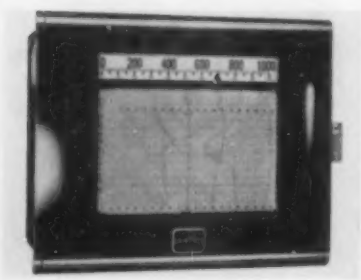
Recently announced is a sliding-belt conveyor that can handle 22,500 lbs/hr. of 50 lbs./cu. ft. The 6″ and 18″ width belt conveyors provide uninterrupted service, and may handle wet or dry, lumpy or granular, light or heavy, smooth or abrasive materials. Features include spliced abrasion and heat resistant belts; screw take-ups; shaft mounted speed reducers. Available magnetic pulleys for the removal of tramp iron may come with the sliding belt conveyors. Bulletin BCB-101 is at your service. Carpco Mfg., Inc., Jacksonville, Fla.

197/Circle on Reader's Service Coupon

Power Controls

Variable speed DC motor drives, as part of a new line, was recently announced to have an overall efficiency greater than 95%, assuring low operating costs. The units are available with single and three phase inputs and power outputs from 1/6 to 15 horsepower. The voltage drop of silicon rectifiers is so slight that they provide true constant torque motor operation and excellent regulation. No rotating parts or electronic tubes are used, resulting in negligible maintenance and repair costs. Small size per horsepower of output makes Powercontrols ideal for installation in new machinery as well as for variable speed operation of existing equipment, reports the Power Control Co. of Livington, New Jersey.

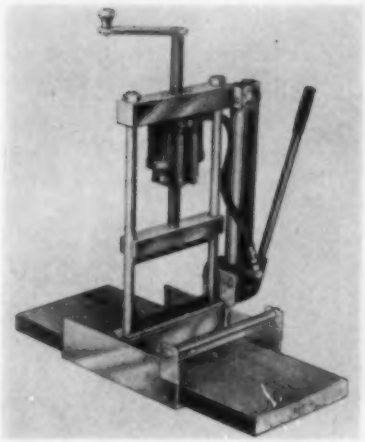
198/Circle on Reader's Service Coupon



Multiple Telemeter

A multiple-printing strip-chart telemeter receiver has just recently been announced. The new telemeter will print up to 16 separate records from many telemetering transmission centers. Using a multiple-switching arrangement, the new receiver can monitor successfully a large number of values from any distance necessary. The variables need not be of one kind. The instrument prints on a 12¼-inch wide strip chart, and is available with either a 5-second or 15-second time impulse system. The Bristol Co., Waterbury, Conn.

199/Circle on Reader's Service Coupon



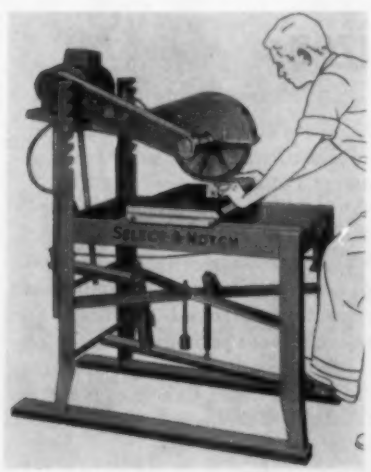
Hydraulic Stonecutter

Designed to achieve full usefulness and versatility, this portable hydraulic pressure unit has a 17½-ton OTC Power-Twin ram which forces two 1-inch square reversible alloy tool-steel blades through the material. The ram is powered by an OTC 10,000-psi pump mounted on the frame where it is easy to use, yet does not interfere with operations. The complete stonecutter, including blades, ram and pump, weighs only 110 pounds, and takes material up to 8½ by 10 inches. Tru-Split Tool Co., 114 West 7th St., Winona, Minnesota.

200/Circle on Reader's Service Coupon

Masonry Saws

Recently offered by Clipper, lets one man perform all cutting functions by adjusting the cutting head to any desired height for cutting any size ma-

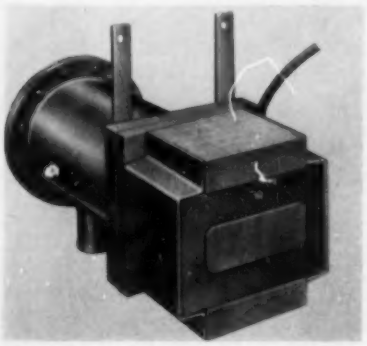


terial from one spot at the front of the saw. The equalizer spring on the select-a-notch enables the blade to cut faster and lasts longer by automatically adjusting the blade pressure to the hardness of the material. Clipper Mfg. Co., Kansas City 8, Mo.

201/Circle on Reader's Service Coupon

Car Rappers

To speed unloading of bottom-dump mine cars, Syntron announces their new Fluid Power Car Rappers with magnetic holders. Operated on oil pressure from a closed circuit pumping system, the Rappers deliver 300 jolts per minute. The units, used in pairs, are easily installed in car dump air—air suspended by cables posi-



tioned so that the magnetic holding devices clear the trip. After the car gates are opened, the switch is closed. The magnetic holders swing in and clamp to the car and the Rappers start pounding. The switch is opened when the car is emptied and the devices swing back out of the way. For more information write Syntron Co., Homer City, Pa.

202/Circle on Reader's Service Coupon

Air Compressor

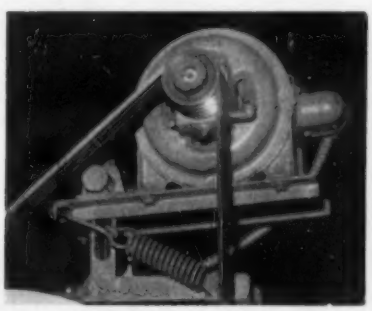
A recent development announced by the Gardner-Denver people is a small compressor that supplies oil-free air. The new unit is the CACB model, designed to provide air for the operation of instrument controls. The carbon parts in the cylinder require no oil or water lubrication. The CACB is a single-stage, air-cooled unit which is available base or tank mounted. It supplies 4 to 5 cubic feet of oil-free air per minute, and is suitable for discharge pressures of 40 to 100 psi. Automatic start and stop controls are supplied as needed. Gardner-Denver Co., Quincy, Illinois.

203/Circle on Reader's Service Coupon

Cement Gun

Operationally this device is simple and can be learned in a very short time. In addition to its uses in applying sand-cement mixtures the Cement Gun can be employed for placing refractory material in new installations and for the maintenance of surfaces exposed to high temperatures. Refractory users can place a lining 1 to 6 inches thick in one continuous operation. The material used in the Cement Gun, Gunite, adheres to clean concrete surfaces to which it is applied, resulting in a bond which is stated to be stronger than the concrete itself. Cement Gun Co., Allentown, Pa.

204/Circle on Reader's Service Coupon



Motor Base

Murray Equipment recently introduced the Tens-A-Matic Spring-Loaded pivoted base. Besides providing automatic belt stretch take-up the unit gives automatic tension control. These features, the company reports, prevent belt slip as well as bearing and belt overloads. Bases are manufactured through 30 HP in spring-loaded type and 250 HP in floor-type. Murray Equipment Co., Inc., Detroit, Mich.

205/Circle on Reader's Service Coupon

Name your bearing needs...we'll meet 'em pronto from 30 types, 10,247 sizes

TIME and time again, machinery makers come to the Timken Company for help with some special bearing application problem. One they think hasn't been solved before. And time after time, from our 30 types and 10,247 sizes of Timken® tapered roller bearings, we've come up with the bearing design to do the job and at minimum cost.

It's no accident that we can help out so often. In over 50 years of helping machinery builders with bearing problems, we've engineered and produced the world's largest selection of tapered roller bearings. And we've constantly improved our designs. The answers to thousands of bearing application problems are already in our files. Ready and available to help you.

And machine users get the same swift service if they ever need a replacement Timken bearing. Even for old machines, they can almost always count on immediate delivery of Timken bearings for replacement.

Why not call on our engineers for help whenever you have a bearing application problem or requirement? Timken is your No. 1 bearing value. Wherever wheels and shafts turn, Timken bearings eliminate friction, cutting wear and maintenance to a minimum. Specify bearings trade-marked "Timken" for the machines you buy or build. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".

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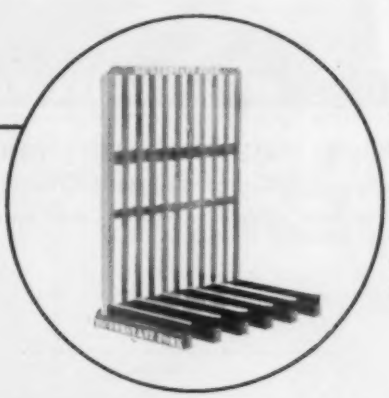
Bickerstaff Brick Fork

Over 226 brick plants throughout the U. S. and foreign countries are using Bickerstaff Brick Forks. More and more, plant operators are discovering that for every type kiln, for every operation, every size package, Bickerstaff Brick Forks save them money and man hours all along the way.



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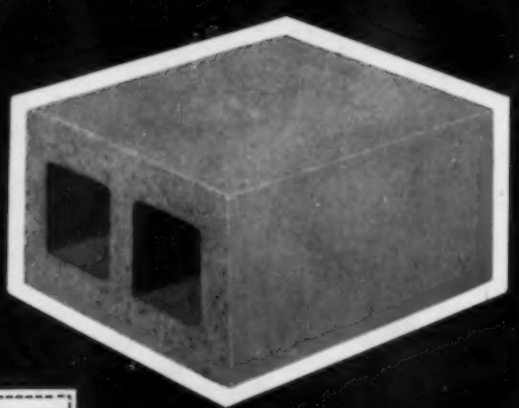

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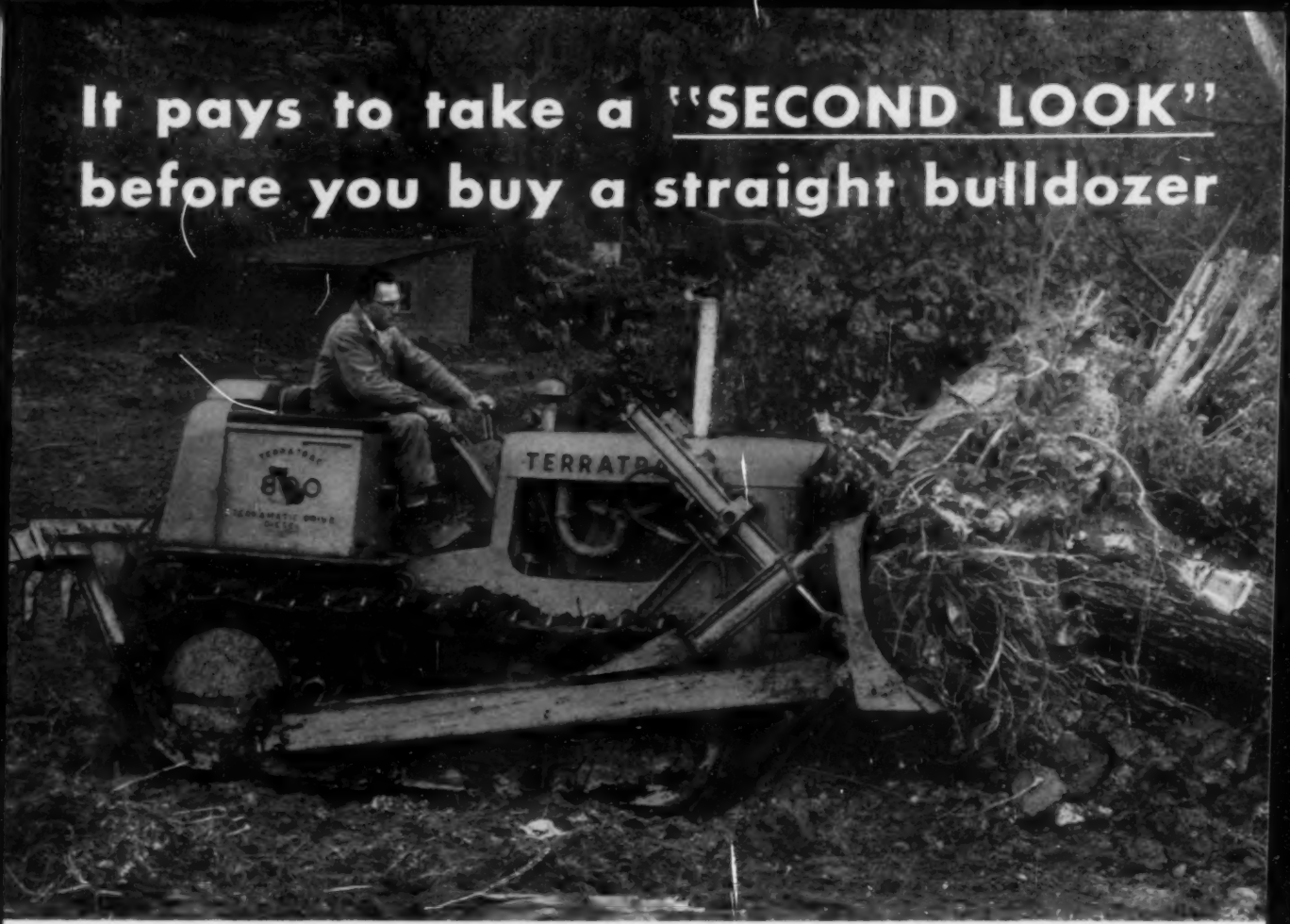
It pays to take a "SECOND LOOK" before you buy a straight bulldozer



Compare the "Big 4" for yourself!

Feature	Case TerraTrac "800"	Mfr. "A"	Mfr. "B"	Mfr. "C"
Blade Width	8'	8'2½"	8'	7'11⅞"
Power-Tilt Blade..	YES	NONE	NONE	NONE
Engine HP (net)..	72 (80 Gross)	63	66.5	66
Torque Converter	YES	NONE	NONE	NONE
Max. lbs. push or pull	20,000*	10,700	15,485	12,600
Forward Speeds, MPH	(4) 0 to 6.0	(4) 1.5 to 6.1	(4) 1.5 to 5.5	(4) 1.7 to 5.9
Reverse Speeds, MPH	(4) 0 to 7.0	(2) 1.7 to 2.6	(2) 2.0 to 4.1	(2) 1.9 to 3.9
Power-Shift Transmission ..	YES	NONE	NONE	NONE
Power-Steer	YES	NONE	NONE	NONE
Power-Brakes ...	YES	NONE	NONE	NONE

*Assuming adequate traction

Above information based on latest specification sheets available to us at time of printing

If you need more capacity ... investigate the new *100 HP* Case TerraTrac Model 1000. Like the "800", it is available with either POWER-ANGLING, or POWER-TILTING blade, in addition to other features shown above.

CASE

1st in quality for over 100 years

Maybe you didn't realize it ... but there's as much difference *performance-wise* between the new Case® TerraTrac® "800" Tilt-Crown dozer — and conventional bulldozers — as there is between a modern *power-operated* automobile and the old-style *"clutch-and-hand-shift"* machines of a few years ago.

Part of this difference you can see "on paper" — in the accompanying chart. But the real difference comes "on the job", where the 800's *exclusive power-tilting blade* — plus greater speed and maneuverability — pay off in more work done per dollar of cost.

Compare the "big four" for yourself. Then mail the handy coupon, so your Case Industrial Dealer can arrange a free demonstration on *your* job — soon!

Clip ... mail for more facts

J. I. CASE CO. Dept. A1368, Racine, Wis., U.S.A.

Send literature on Case TerraTrac Dozers

☐ Model 800 ☐ Model 1000 ☐ Power-Tilt ☐ Power-Angling

Name ..... Position .....

Company .....

Address .....

City ..... State .....

CT-D-55

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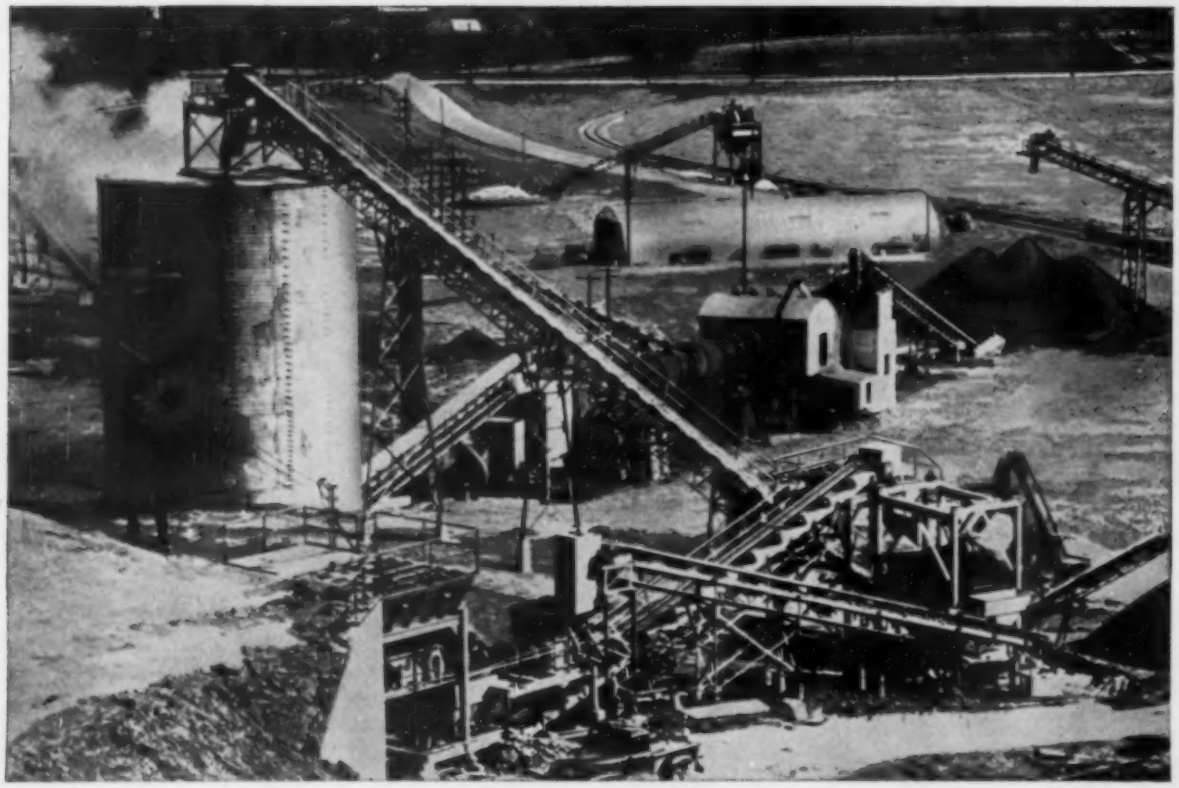


R/M Puts Extra Life in RAY-MAN CONVEYOR BELT

. . . Gives You "More Use ~~per~~ for Your Dollar"

Every feature of the conveyor belt you use to handle brick, clay and other bulk materials — belt troughability, resiliency, fastener holding ability, strength member fabric, cover toughness and thickness — help determine the *real* cost of that belt on your job. That's why R/M engineers have precision proportioned every component part of Ray-Man Conveyor to assure better belt balance where it can pay off most for you — in longer belt service life!

Elastic cushioned strength member plies made of strong, natural and synthetic fabrics give this belt amazing resiliency and flexibility to trough easily and train naturally. Compensated, balanced construction relieves stress on the outer plies of the belt to give Ray-Man exceptional fastener holding ability *without* a breaker strip. R/M's exclusive "XDC" Cover adds a degree of protection against wear, tear, cuts and abrasions never before possible. Like all R/M heavy duty conveyor belts, Ray-Man is mildew-proof and moisture resistant.

Ray-Man Conveyor Belt cuts your handling costs because it's *engineered* to do a better job . . . and to *last longer.*

Let an R/M representative show you the advantages of Ray-Man as well as other R/M conveyor belts. He'll help you select the one with extra life for your job . . . More Use for Your Dollar. Write for Bulletin 6915.

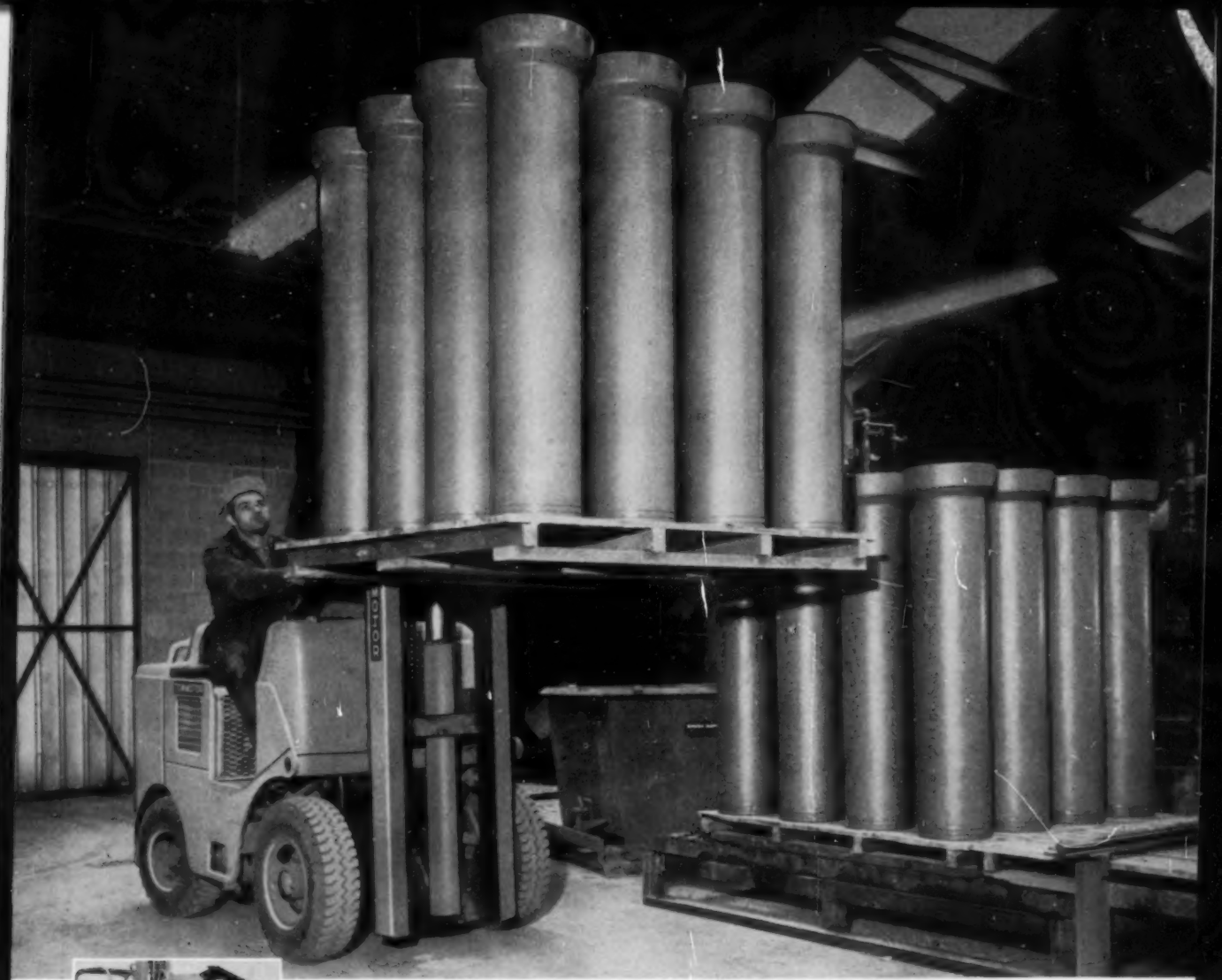
RM 6915

BELTS • HOSE • ROLL COVERINGS • TANK LININGS • INDUSTRIAL RUBBER SPECIALTIES

MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products: Abrasive and Diamond Wheels • Brake Blocks and Linings • Clutch Facings • Asbestos Textiles • Mechanical Packings • Engineered Plastics • Sintered Metal Products • Industrial Adhesives • Laundry Pads and Covers • Bowling Balls



Today's industries need Towmotor Continuous Operation

New Towmotor **"Constant-Power"** Lift Raises Productivity - and Profits

Towmotor Standard Accessories that grab, scoop, push-and-pull, ram, revolve and even shift sideways, offer versatility that saves manhours and dollars daily.

"Pace-Maker" Series Model 540 is typical of new fork lift trucks in the combined Towmotor-Gerlinger line. Load capacities from 1500 to 40,000 pounds.

Driving Ease More Than Tripled with new Towmotor power steering! TowmoTorque Drive adds cushioned "creep" control unequalled in the industry today.

It's easy to see how Towmotor fork lift trucks built a reputation for modern mass-handling efficiency.

As *standard equipment* you get engineering advances like the new Towmotor "no-power-loss" pump that guarantees instant response and constant lifting action. Towmotor operators get positive control in raising, lowering and positioning loads. Handling tons of materials is swift, safe and continuous!

With Towmotor fork lift trucks more work gets done with less fatigue. Motion-saving centralized control — cushioned-comfort seating — dual entry compartment — high free lift — are other standard features that give you convincing reasons for buying modern Towmotor-Gerlinger equipment.

For latest information on the industry's most complete line, send coupon below.

Leaders for 39 years in building Fork Lift Trucks, Tractors and Carriers

TOWMOTOR -GERLINGER
THE ONE-MAN-GANG

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation, Cleveland 10, Ohio

☐ Send free Towmotor Catalog No. SP-23
☐ Send free Certified Job Studies relating to our business, which is

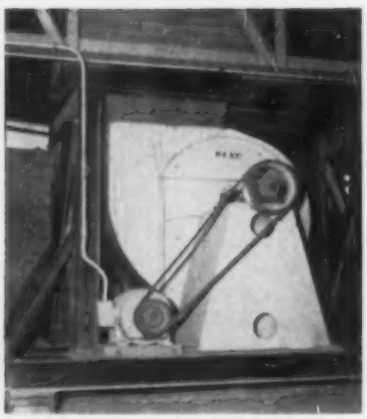
Name_____

Company_____

Address_____

Mail to **TOWMOTOR CORPORATION,** Cleveland 10, Ohio

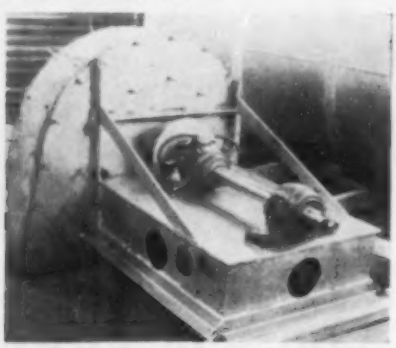
Smooth Air Handling by ROBINSON



Robinson Type AE-6-BB Single Inlet Exhaust Fan serving a tunnel kiln exhaust system.

Robinson Fans for Refractories Production

Robinson Turbine Type CS Pressure Blower (Bulletin No. 1100).



Special AE-6-BB exhauster for High Temperature Recirculating Systems.

Send for our Catalog

Robinson Sulkey Type Cooling Fan (Bulletin No. 8001).

There are Robinson fans for every tunnel kiln in refractories production. High temperatures are encountered and in many cases large volumes of gases must be handled. Frequently floor dryers are controlled in temperature and moisture to less than 1° or 1%±. Only Robinson fans are made to handle air—for all purposes—in refractory production with extreme smoothness.

SEE OUR CATALOG IN Ceramic data book Page 283

STRENGTH AND QUALITY

ROBINSON VENTILATING CO.

ZELIENOPLE, PA.

Metropolitan modernizes plant and methods

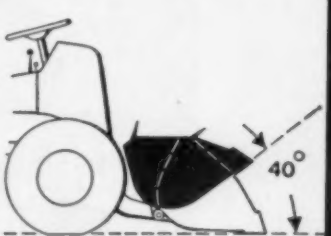
Metropolitan Brick Co's. plants and methods at Darlington, Pa., and Minerva, Ohio have been extensively modernized to improve both production and quality of product. The new clay storage and grinding building at Minerva is a model of cleanliness and efficient materials handling. The walls and clay-storage stalls are lined with Metropolitan's own glazed structural tile, to prevent clay-sticking and facilitate cleaning.

A Hough 1 cu.yd. model HAH "PAYLOADER" tractor-shovel, shown, shuttles between the storage stalls and the two hoppers to feed the different clays into the dry pans in the proper ratio and quantity. Herbert Pfingsten, Supt., refers to this "PAYLOADER" as, "specifically selected for the job, with plenty of lift and reach to charge the high hoppers . . . reserve capacity to handle the tonnage needed . . . rear-wheel power-boosted steering and torque-converter for smooth, easy operation . . . roll-back bucket action to dig and carry full loads with little spillage.".

The model HAH is one of the complete "PAYLOADER" tractor-shovel line — six sizes from 2,000 lbs. to 9,000 lbs. carrying capacity. A nearby Hough Distributor will be glad to demonstrate what a "PAYLOADER" can do on some of *your* materials handling problems. Ask about Hough Purchase and Lease Plans too.

40° ROLL-BACK AT GROUND LEVEL

Develops powerful digging force — brings bucket close to machine for maximum stability and carrying capacity, and least spillage loss while transporting loads.



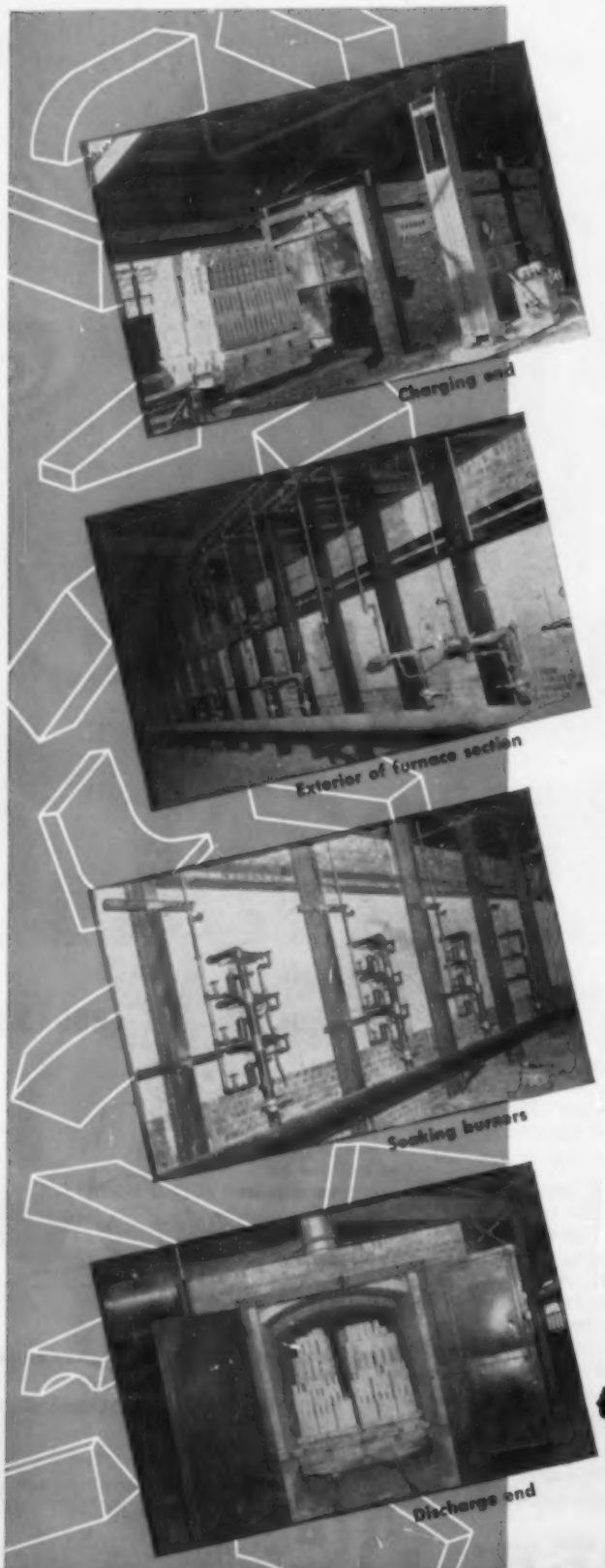
PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO.
753 Sunnyside Ave., Libertyville, Ill.

Send data on "PAYLOADER" tractor-shovel models:

- ☐ HA (2,000 lbs. carry) and HAH (3,000 lbs. carry)
- ☐ Larger models to 9,000 lbs. carry capacity

NAME
TITLE
COMPANY
STREET
CITY STATE
12-A-5



kiln production tops 50,000 9″ equivalents in 24 hours

That's HARROP firing for you!

Mexico Refractories Company, Mexico, Missouri accomplishes this production feat with a 406-foot HARROP kiln. Burning gas, with oil as stand-by, this kiln handles a miscellaneous assortment of dry press, handmade and stiff mud fire brick and special shapes. It's the third HARROP kiln installation since the company first started in 1929, producing "better refractories for the furnaces of industry." Nine HARROP dryers are also on duty.

If drying and firing creates a bottle-neck in your plant, maybe a HARROP Engineer can break it. His experience in hundreds of ceramic plants can be a big help to you now. A non-obligating consultation on proposed new installations can be quickly arranged. Just write, wire or phone!

HARROP

HARROP . . . Practical Ceramic Engineering, Put Profitably to Work

Harrop Ceramic Service Co.

35 E. Gay St., Columbus 15, Ohio

British Associate:
British Ceramic Service Co., Ltd., Bricesco House, Stoke-on-Trent, England

Agent for Brazil:
Refratarios e Equipamentos Industriais "Reila," Ltda., Sao Paulo, Brazil

TUNNEL KILNS • DRYERS • PLANT DESIGN

Barber-Greene Idlers provide extra years of low cost operation . . . the ultimate in belt protection.

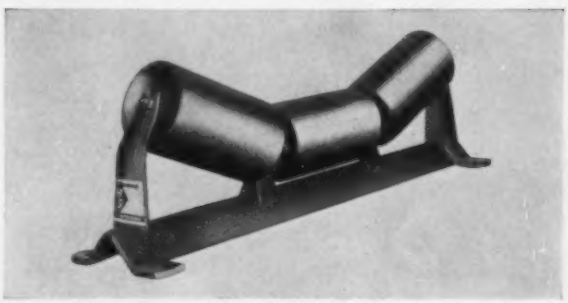
Barber-Greene Idlers . . . still rolling after twenty years

Installed 20 years ago, Barber-Greene Idlers are still rolling at this Material Service Corporation plant in Chicago.

There are no secrets behind the long-life records established by Barber-Greene Idlers. Advanced design plus top-quality materials, plus precision manufacture with the most modern production machines make the difference. The user benefits in lower maintenance costs, less down time, and longer idler life.

Barber-Greene advantages include virtually unbreakable jig-welded base frames, self-shedding base angles, interchangeable rolls made of heavy steel tubing, seamless steel grease reservoirs of ample capacity, and two-degree tilt to facilitate belt alignment.

Whether it's a ball bearing unit for normal service, or a roller bearing unit for the most rugged conditions, Barber-Greene has the idler that's right for any conveyor . . . right for any job.



Available in widths from 16" to 60", with 4", 5", or 6" rolls, the Barber-Greene line includes standard troughing carriers and return rolls, flat belt and picking table carriers, self-aligning carriers and return rolls, grain idlers, rubber impact carriers, and self-cleaning return rolls.

56-22-IPE

Write for literature on the complete Barber-Greene idler line.

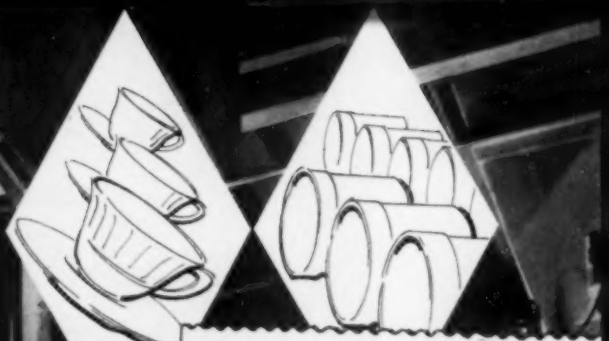
Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

SIMPSON *MIX-MULLERS*®

for the Ceramic Industry



Curtain News Pressing

NEW CERAMIC BULLETIN OFFERED BY NATIONAL

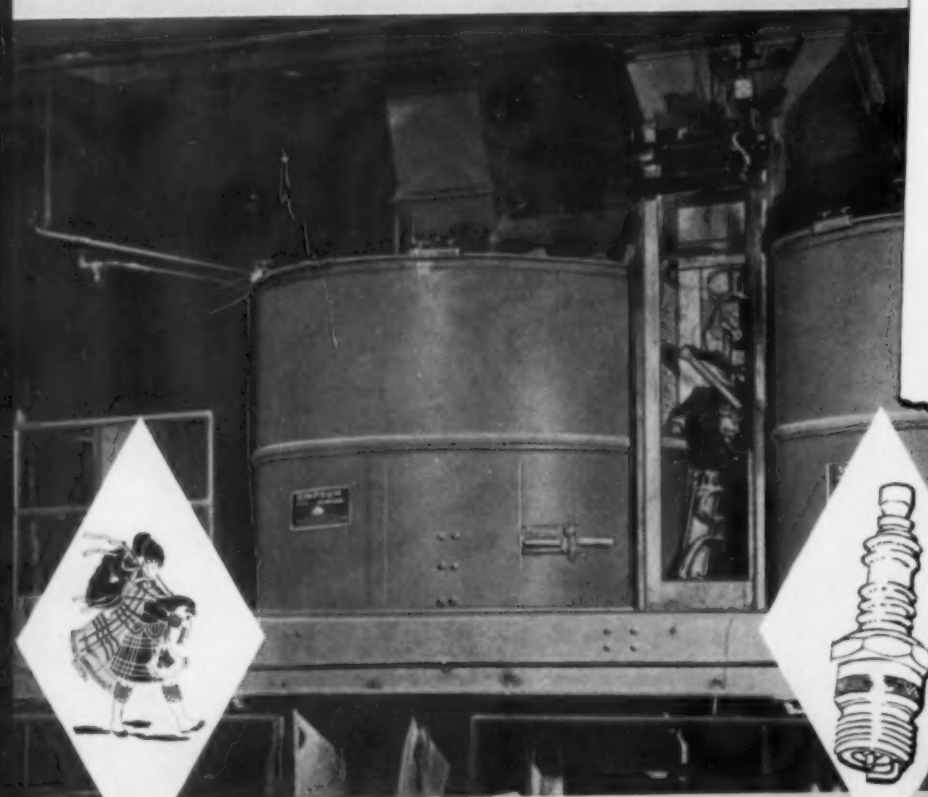
(VP) Oct. 1 "Simpson Mix-Mullers for the Ceramic Industry", a new 4-page bulletin offered by National Engineering Company, Chicago, outlines use of Simpson Mix-Mullers in preparing a variety of ceramic bodies including: Tile, Refractories, Whiteware, Steatite, Structural products, Artware, Dinnerware, etc.

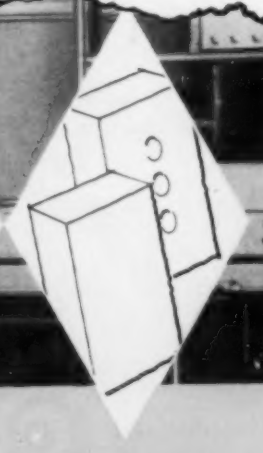
Savings Cited

Discussed are the *mulling principle* of dry preparation and the considerable savings in raw material, labor and time eliminated by Mix-Muller use. Outstanding control over moisture and thorough, controlled dispersion of mix components are cited as being of particular interest to ceramic engineers.

No Obligation

The bulletin may be obtained without charge by writing for CERAMIC BULLETIN to the address below.



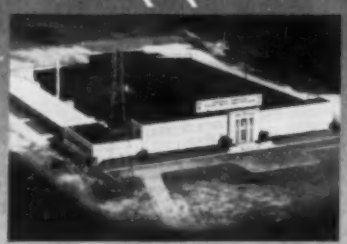


SIMPSON *MIX-MULLER*® DIVISION

National Engineering Company, 654 Machinery Hall Bldg., Chicago 6, Illinois

North American

GROWS*



by popular demand
for superior

Burners
Blowers
Controls

plus service

North American's staff of 58 combustion and control engineers can help you

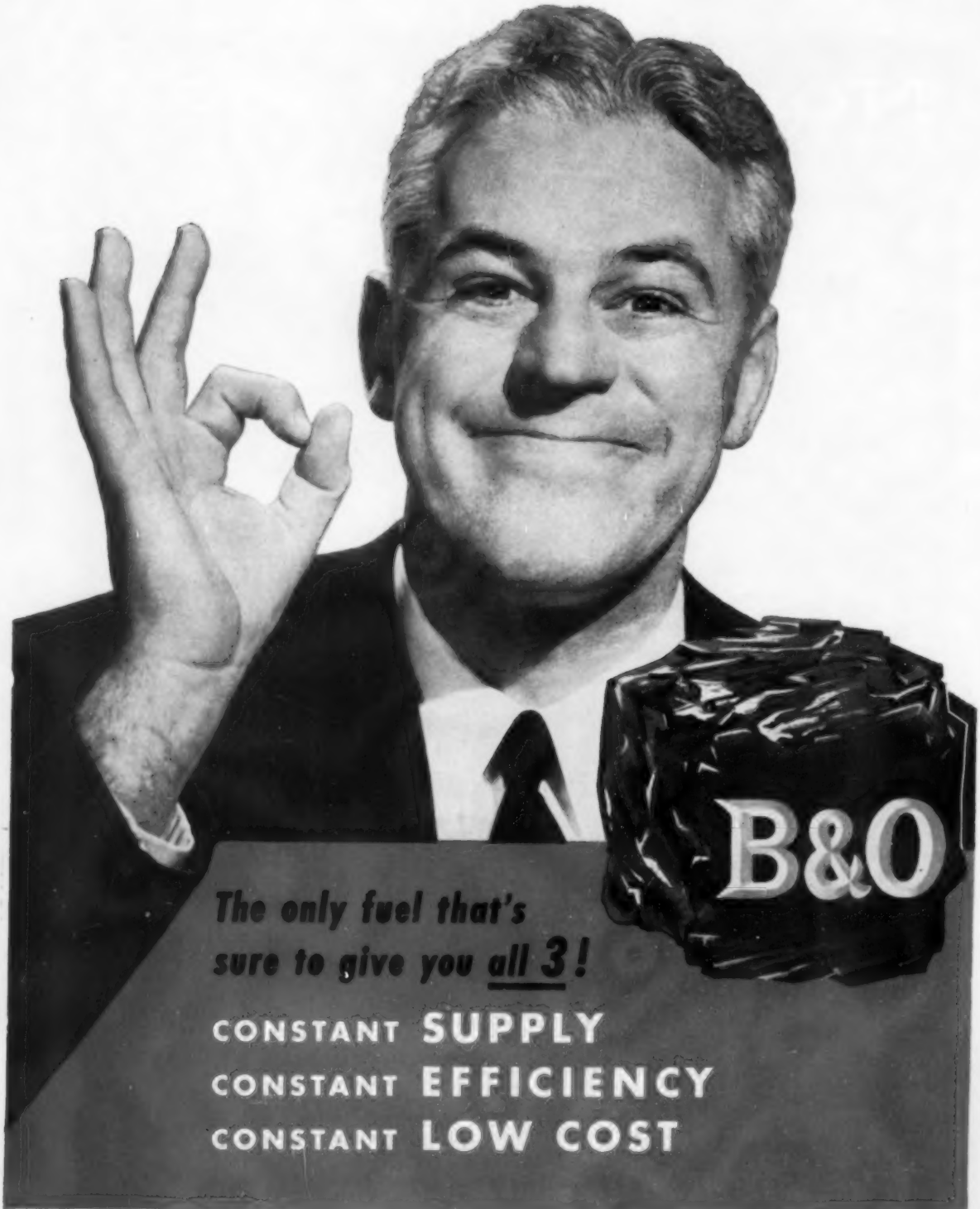
Save Money By

saving fuel
increasing production
improving product quality
bettering safety performance
achieving temperature uniformity
insuring cleanliness and less maintenance

*Photos show plant growth in the last ten years, but North American's experience has been growing since 1917

NORTH AMERICAN COMBUSTION Since 1917

The North American Manufacturing Co.
COMBUSTION ENGINEERS
CLEVELAND 5, OHIO



B&O BITUMINOUS COALS FOR EVERY PURPOSE

Ask our Man! BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD. *Phone* LExington 9-0400

Brick & Clay Record

January, 1958 Vol. 132, No. 1

5 SOUTH WABASH AVE.
CHICAGO 3, ILL.
FRanklin 2-6880

ABC established 1892, now in 67th year.

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***Ceramic Engineering Staff.**

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BRICK AND CLAY RECORD is indexed by Engineering Index, Inc.

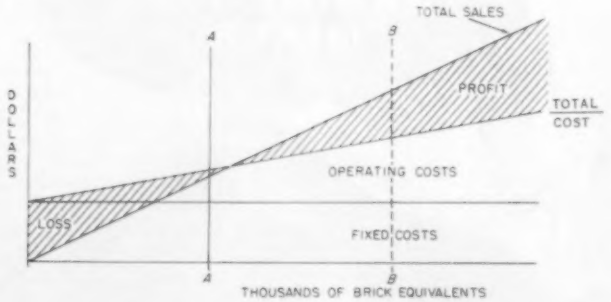
Know your Break Even Point

Cutting the fat out of business operations for health's sake seems to be a management must today.

One device for control of costs of business operations is the break even point. This checking device quickly points up excessive costs, low prices, poor profits and is an excellent red light when approaching a loss-of-profit situation.

In the clay products industry, this can be established by grouping costs and plotting them against sales.

The break-even point is at A-A, where total sales line intersects the total cost line. Point A-A can be moved to the left by reducing costs or increasing prices. These reductions can be in fixed costs by cutting some of the overhead. It can be moved by decreasing operating costs and becoming more efficient.



It is obvious that the total cost line will come down and the shaded profit section will be greater. Of course, if competition is tough and prices fluctuate, the total dollar sales line may come down and squeeze the profit section.

The aim, therefore, for every operator is to lower the break-even point so that the spread between sales and costs would increase greatly. Knowing these costs is important and to be able to visualize them quickly and on a continuous basis is winning the biggest part of the battles. B&CR here suggests one way to know where you are going.

The Editors

ACTUAL TEST RECORDS *

IN THE REFRACTORY INDUSTRY PROVE

400% FASTER performance

with

A research engineer for a large midwest manufacturer of refractories recently tested the phenomenal Smith Turbine-Type Mixer on six different mixes. Here is a summary of the engineer's unbiased evaluation:

MIXING TIME
averaged out *four times faster* than the conventional type mixer previously used on the same six mixes.

BLENDING
of the materials was considerably more uniform.

A FASTER MEANS OF COATING
— and a thicker, denser coat —resulted from the new mixer in cases where the coating of one material by another was desirable.

NO EXCESSIVE BREAKDOWN OF PARTICLE SIZE
occurred in the mixing of lightweight friable material.

CLAY "BALLING" TENDENCIES
were materially reduced, and a good clay coating was obtained on such materials as calcine and quartz.

* So convincing were the test results that the manufacturer purchased and is now using the new Smith Turbine-Type Mixer. Name of manufacturer and type of mixes tested will be furnished on request.

"LIVE MIX" IS THE ANSWER!

Mixing is done in a doughnut-shaped drum. There is no "dead center" area. Blades set up a braiding action which breaks down centrifugal forces. As a result the Smith Turbine-Type Mixer mixes at a peripheral rate of *six hundred feet per minute!*

WRITE FOR DETAILS TODAY!

SMITH

Since 1900, the pioneer designer and foremost manufacturer of the world's finest mixers.

THE T. L. SMITH COMPANY • Milwaukee, Wisconsin • Lufkin, Texas

Affiliated with Essick Manufacturing Company • Los Angeles, Calif.

A8-4042-1P

NEWS OF THE INDUSTRY

Illinois Brick Acquires Western Brick Co.

As a further step in a program of diversification and expansion in the construction industry, Illinois Brick Company of Chicago has acquired for cash substantially all of the outstanding shares of Western Brick Company of Danville, Illinois, in which it previously had owned only a minority interest, has been announced by John Goodridge, president of Illinois Brick.

For an investment of approximately $1,500,000 Illinois Brick has acquired one of the foremost manufacturers of shale face brick and Haydite aggregate in the Middle West, Goodridge said. Both the face brick and the Haydite are distributed over a wide area of the Middle West.

Western Brick Company was established in 1900. Illinois Brick Company has acted as the Chicago distributor of its products since 1940, but the arrangement announced today will extend Illinois Brick operations into Southern Illinois, and will expand and diversify the products available to customers of the Western Brick Company.

Western Brick, under the management of I. R. Cline, is notable for a complete modernization of its manufacturing processes through the installation of four modern tunnel kilns and the reconstruction of its Haydite process in the last ten years.

The present management of the Western Brick Company with Mr. Cline as president will continue in their present capacities.

American Vitrified Declares Extra Stock Dividend

In addition to their regular quarterly dividend, The American Vitrified Products Co., Cleveland, Ohio, has declared an extra stock dividend, it has been announced by E. L. Miller, President, following the meeting of the Board of Directors.

The regular quarterly dividend of $.30 per share is payable December 20th, 1957, to stockholders of record, December 13th, 1957.

The extra stock dividend of 4 per cent is payable January 15th, 1958, to stockholders of record January 23rd, 1958.

Norton Reorganizes Research and Development

The Research and Development Dept. of Norton Co., Worcester, Mass., has been reorganized to correspond with the company's divisional reorganization made a year ago.

The reorganization will facilitate the transmission and handling of problems between the R&D department and the manufacturing divisions. It also provides for increased volume of work in exploratory and fundamental lines.

Four major sections will now handle abrasives, refractories, basic exploratory research and laboratory services. Dr. Neil N. Ault has been appointed Assistant Director of Research and Development of the Refractory section. Ault has been with Norton since 1950.

TRI Factory Operators To Meet March 6-7

A. M. Swank, president of Hiram Swank's Sons and a TRI director, will give the Address of Welcome at the Factory Operator's Meeting of the TRI. The group will meet March 6-7 at Pittsburgh, Pa.

As part of the meeting, members will tour the Swank's plant at Large, Pa., a few miles south of Pittsburgh. The meeting place and agenda for the meeting will be reported on later.

Boeglen, Board Named by NADD

Durwood Boeglen, Cushwa Brick & Building Supply Co., Washington, D. C., has been elected President of the National Association of Distributors & Dealers of Structural Clay Products at a recent meeting.

Arthur T. Moulding, Thomas Moulding Brick Co., Chicago, Illinois, has been elected Vice President and John H. Donohue III, Corning-Donohue, Inc., St Paul, Minnesota was re-elected Secretary-Treasurer.

A 17-man Board of Directors was also elected to direct the affairs of the one-year-old organization. They are:

Georgia: F. Graham Williams, F. Graham Williams Co., Atlanta.

Indiana: F. E. Schouweiler, Old Fort Supply Co., Fort Wayne.

Maryland: John L. Swope, Monumental Brick & Supply Co., Baltimore.

Massachusetts: J. Harold Parry, Parry Sales Company, Boston; and Harry M. Spaulding, Spaulding Brick Co., Inc., Boston.

Michigan: Sam Burtman, Century Brick Co., Detroit.

New York: Maurice Goldberg, Belden-Stark Brick Corp., New York City; and Fred Haenszel, John H. Black Co., Buffalo.

Ohio: James Morrisey, Cleveland Builders Supply Co., Cleveland; and Edwin G. Schmitt, Cincinnati Builders Supply Co., Cincinnati.

Pennsylvania: Barnes Haines, Gloninger & Co., Pittsburgh.

Texas: F. Sherman Breshears, Great Southern Supply Co., Houston; and J. P. Marchioli, A-One Brick & Supply Co., Midland.

Virginia: P. F. Smith, Eastern Building Supply Co., Richmond.

Wisconsin: Claude J. Gagnon, Gagnon Clay Products Co., Green Bay.

Canada: Henry Bastien, W. & F. P. Currie, Ltd., Montreal; and P. L. Campbell, Webster & Sons, Ltd., Montreal.

McLain Works Holds "Old Timers" Meeting

The McLain Works, Refractories Div., of H. K. Porter Co., Inc. recently held their seventh annual "Old Timers Club" dinner in Pittsburgh. Club membership is based on a minimum of 25 years service, with all of the employees in the photo having that time or more. In the picture, E. G. Platt, general works manager, presents an engraved watch to C. T. Zook, manager of hot top sales.

$5 Million Corona Plant Ready To Go

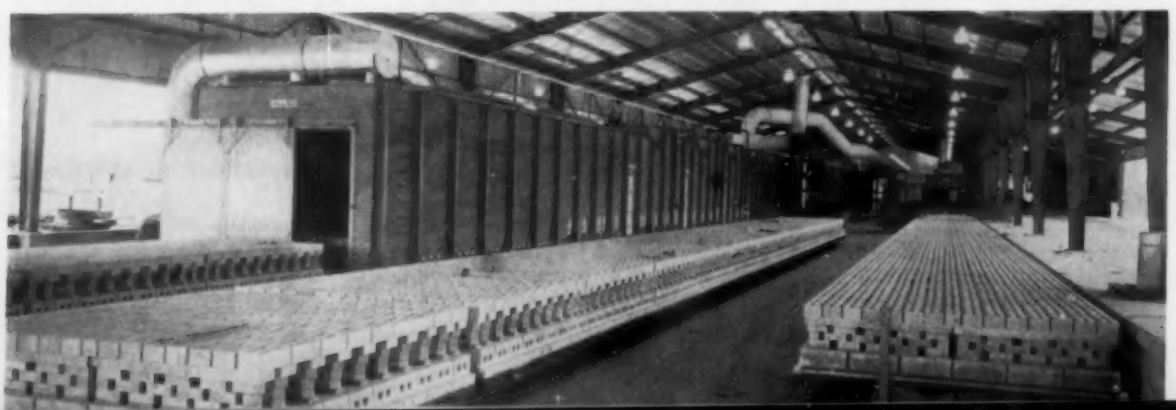
New Gladding, McBean Pipe Plant Completed, Ready For Operation

Encompassing 33 structures totalling 200,000 sq. ft. of space; a 420′ tunnel kiln with 10 x 10′ cars that can carry pipe up to 18″ in diameter; 16 dryers; eight 40′ periodic kilns and a battery of horizontal and vertical presses, construction was complete with operation expected to begin in December at the new $5 million Corona plant of Gladding, McBean & Co.

Pipe up to 42″ in diameter and 5′ long will be produced along with a new design in lighter weight and longer length multiple-duct conduit.

Pictures taken during the first stages of construction were shown in the June, 1957 issue of B&CR, pages 42-43.

Overall view of new plant is shown at top of page. At right is partial view of mixing-grinding operation. A 700′ conveyor system transports the mix to the storage bins. The plant is highly automated. Below is a view of the new Allied tunnel kiln and of the 10 x 10′ cars being used.



NEWS OF THE INDUSTRY

Shipley, Others Re-Elected by SCPRF

The four officers of the Structural Clay Products Research Foundation who headed the organization during the past year were re-elected at a recent meeting at the Greenbrier Hotel, White Sulphur Springs, West Va.

Roy A. Shipley, President of the Natco Corp., Pittsburgh, Penna., was re-elected Chairman for 1957-58.

William A. Crossan, President of Metropolitan Brick, Inc., Canton, Ohio, was re-elcted Vice Chairman of SCPRF.

The re-elected Secretary is Harry C. Plummer, Director of Engineering and Technology for the Structural Products Institute, Washington, D. C.

A. C. Frisk, President of the Mason City Brick & Tile Co., Mason City, Iowa, was renamed Treasurer.

Robert B. Taylor is Director of SCPRF with headquarters at the laboratories in Geneva, Illinois.

A 35 man Board of Management, which will serve for 1957-58, was elected to assist in the direction of SCPRF. The members are:

California: James B. Crawford, Kraftile Co., Niles; C. W. Planje, Gladding, McBean & Co., Los Angeles; and John W. Rice, Jr., Union Brick Co., San Diego.

Colorado: Ralph J. Welte, Summit Pressed Brick & Tile Co., Pueblo.

Georgia: Richard H. Bickerstaff, Bickerstaff Brick Co., Columbus; Kenneth W. Dunwody, Cherokee Brick & Tile Co., Macon; and Kenneth H. Merry, Merry Bros. Brick & Tile Co., Augusta.

Illinois: George A. Berry, III, American Terra Cotta Corp., Crystal Lake; C. E. Carter, Peoria Brick and Tile Co., Peoria; I. R. Cline, Western Brick Co., Danville; and George Gammie, Illinois Brick Co., Chicago.

Iowa: A. C. Frisk, Mason City Brick & Tile Co., Mason City.

Minnesota: M. C. Madsen, Twin City Brick Co., St. Paul.

Mississippi: Robert H. Robinson, Tri-State Brick & Tile Co., Jackson.

Missouri: L. S. Meyer, Hydraulic-Press Brick Co., St. Louis.

New York: Henry Abreu, Jova Brick Works, Roseton; Francis M. Gaynor, Nassau Brick Co., Farmingdale, Long Island; and Oscar E. Mathiasen, Federal Seaboard Terra Cotta Corp., New York.

North Carolina: Orton A. Boren, Boren Clay Products Co., Pleasant Garden; John H. Isenhour, Isenhour Brick & Tile Co., Salisbury; and F. F. Steele, Jr., Pine Hall Brick & Pipe Co., Winston-Salem.

Ohio: Paul B. Belden, Jr., The Belden Brick Co., Canton; William A. Crossan, Metropolitan Brick, Inc., Canton; C. M. Shafer, Stone Creek Brick Co., Stone Creek; John H. Stewart, Stark Ceramics, Inc., Canton; and Phillip W. Tefft, The Claycraft Co., Columbus.

Pennsylvania: Charles E. Alwine, Alwine Brick Co., New Oxford; and Roy A. Shipley, Natco Corp., Pittsburgh.

Tennessee: John S. Herbert, W. G. Bush & Co., Nashville; and W. S. Sells, General Shale Products Corp., Johnson City.

Texas: T. J. Butler, Elgin-Butler Brick Co., Austin; J. B. Edwards, Reliance Clay Products Co., Dallas; and J. E. Fender, Acme Brick Co., Fort Worth.

West Virginia: Claude F. Wiseman, West Virginia Brick Co., Charleston.

Canada: Hedley Henderson, Cooksville Co., Ltd., Toronto.

New Ceramic Veneer Book

Ceramic Veneer is pictured and described in a new 8-page, four color booklet issued by the Architectural Div. of Gladding, McBean & Co., Los Angeles. The book describes various types of the product and gives construction details, installation and specifications.

Canadian Ceramists To Meet Feb. 16-18

The Canadian Ceramic Society convention will be held February 16-18 at the Seigniory Club, Montebello, Que.

McKay Elected Region 6 President

New officers of Region 6-SCPI were elected at a meeting held Dec. 6 at Des Moines, Iowa. President is C. A. McKay; G. H. Galvin Jr. is vice president; E. E. Apt, secretary; and A. M. Prall, treasurer.

O. J. Whittemore and A. C. Frisk were elected to represent Region 6 on the SCPI national board of directors. Both of the latter also have various regional committee posts.

Jova Introduces New Color Line

Jova Brick Works has announced a new line of colors in face brick. The firm, of Roseton, N. Y., is one of the oldest plants in the Hudson River valley. For this reason, all of the colors have been named for historically important names of that area.

All of the other new colors to come in the Jova line will be named to conform to the historical names now used. All of this will tie-in with a Hudson River Centennial celebration to be held.

Clyde Kendrick Dies at 60

Clyde H. Kendrick, executive vice president of Kendrick Brick & Tile Co., Monroe, N. C., died Dec. 2 after a long period of ill health.

Kendrick had been general manager of a brick plant at Shaleton near Monroe until 1947 when ill health forced him to reduce his business activities.

Daniels B&T Sells Plant to Southside

Daniels Brick & Tile Co., Richmond, Va., has withdrawn from the brick business and sold their plant to the local Southside Brick Works Inc.

Daniels will remain in the tile business, according to the report. Frank Daniels Jr., vice president, felt that there was a little too much work involved in handling two lines, so the firm will now concentrate solely on tile.

Southside bought the buildings, machinery and 7.2 acres of land used by Daniels.

Carlisle Brick Asks Tax Refund

Carlisle (Iowa) Brick & Tile Co. has asked the federal district court at Des Moines to order a refund by the Internal Revenue Service of $3,206 in income taxes. The company contends that it was overcharged taxes from 1951 through 1954 for the above total.

Claycraft Builds Product Development Lab

A new product development laboratory is being constructed, to be staffed by ceramic engineers, as part of a continuing program of expansion for the Claycraft Co., with the lab being built in Columbus, Ohio to serve Claycraft's five Ohio plants.

NEWS OF THE INDUSTRY

Robco Veneer To Be Made in Mexico

Robco "3-8 Vitrineer" will be made in Mexico by Ladrillero Monterey S. A., according to a recent report. Robinson Brick & Tile Co. of Denver and the Mexican company worked out the franchise agreement, with the Mexican firm given exclusive manufacturing rights in Mexico.

The Ladrillero company is headed by Dr. Bernardo Elosua and is the largest brick and tile producer in that country.

Graham Named Cooksville General Sales Manager

Joseph J. Graham has been appointed Sales Manager of the Cooksville Co. Ltd. of Toronto, Canada. He was named to replace Everett G. Glen who retired as General Sales Manager at the end of December. Glen has been with Cooksville 34 years.

Norman F. Westheuser was appointed sales service manager for the company.

Amvit Names Bussen

William E. Bussen has been appointed St. Louis district manager for the American Vitrified Products Co. Bussen formerly was sales manager, vitrified division, for the Laclede-Christy Works of the H. K. Porter Co.

Bennett Appointed Pacific Clay Research VP

A. Lee Bennett has been elected vice president in charge of research for Pacific Clay Products, Los Angeles, according to an announcement by President John Fredericks.

Bennett was district manager, Pacific Northwest, for Gladding, McBean & Co. for six years before joining Pacific Clay in 1954. He has more than 30 years' administrative and engineering experience in pipe, refractories, etc.

Blackhawk Clay Seeks Income Tax Refund

Recovery of $4,625.77 in income taxes is being sought by Blackhawk Clay Products Inc., Davenport, Iowa, in a suit petition filed recently in U. S. Federal District Court in Davenport. The refund is being asked on taxes paid in 1951.

Hanley Brick Plans Modernization Program

Plans to modernize the Lewis Run plant have been announced by the Hanley Co., Summerville, Pa. The oldest part of the plant is being shut down to permit the work to start.

The new facilities will incorporate many features developed by the company including a tunnel kiln. The work is being planned to avoid interference with production in the present tunnel kiln plant, the report said.

Streator's NEW PLASTIC Amvit jointed clay pipe chosen for Glen Ellyn sanitary system

Outstanding mechanical joint on longer Streator Clay Pipe one of city's lifelines

Effective Ad For Streator Sells Pipe in Chicago

An excellent example of carefully prepared and planned advertising was recently used to promote sales of pipe made by Streator (Ill.) Drain Tile Co., with the ad used pictured above.

The good-looking ad was spotted in the Sunday *Chicago Tribune* with excellent placement in a special once-weekly section of the paper aimed at people living in the western part of the city and the western suburbs. Most Chicago papers now have a section weekly devoted to a particular area of the city, with ads and editorial material primarily devoted to these areas.

The Streator ad discusses an installation of pipe as done in Glen Ellyn, one of the best known western suburbs, thereby achieving the effect of something happening in the "back yard," so to speak, of other suburbs of that area.

Key points in the ad discuss the waste of using "substitute" materials; the permanence of clay pipe; the advantages of the Streator pipe with the special Amvit joint. The ad was prepared by Griswold-Eshleman Advertising of Cleveland.

A. P. Green Elects Offutt Vice President

J. J. Offutt has been elected a vice president of A. P. Green Fire Brick Co., effective Jan. 1, according to an announcement by President W. S. Lowe.

Offutt has been with Green for 30 years, with experience in all phases of the company's operations including posts as the post of Plant Superintendent.

In 1946 Offutt was appointed general manager of the A. P. Green Fire Brick Co. Ltd. of Toronto, Canada. In 1954, he returned to the company headquarters in Mexico, Mo.

Barnett Named VP

The A. P. Green Fire Brick Co. has also announced that A. R. Barnett, a vice president, has been appointed director of A. P. Green Domestic Subsidiaries, including Canada.

Barnett has been with Green for about 34 years in various executive capacities.

Brick Salesmen's Workshop To Be Held Feb. 10-12

A Brick Salesmen's Workshop will be held at the Sedgefield Inn, Greensboro, N. C., under joint sponsorship of the Southern Brick & Tile Mfrs. Assoc. and Brick & Tile Service, Inc.

The meeting dates are February 10-12.

New SCPI Sales Course To Begin Feb. 17

A new class of the SCPI Sales Engineer Training course is scheduled to begin February 17, to run through March 21. There are some openings left in this course for students.

If you'd like to join, write soon to Sid McNall, care of SCPI in Washington.

Archer Named General Supt. for Three General Shale Plants

Hunt Archer, plant superintendent of General Shale Products Corp. of Johnson City, Tenn., has been named general superintendent for plants in Johnson City, Marion, Va., and Richlands, Va., according to a recent announcement.

The General Shale firm is introducing a new color brick, Harvest Blend, the report says.

O. A. Zerga Co. Inc. has been established in Detroit, Mich., as distributor of face brick and other structural clay products. The firm is operated by "Bud" Zerga.

R. K. Robertson Dies

Randal K. Robertson, vice president and general manager of the structural clay products division of the Dominion Tar & Chemical Co., and former vice president-general manager of Laprairie Brick Co., both of Canada, died Dec. 26 at the age of 65.

He had planned to retire from business on Jan. 1.

Claude Fuller Dies

Claude E. Fuller, 80, one-time engineer and superintendent of the Hydraulic Brick Co. of Kansas City; superintendent of Buffalo (Kan.) Brick Co.; secretary and general manager of the California Brick Co. of Oakland; chief engineer of the American Brick Co. of Chicago, and holder of many patents on brick making machinery, died Dec. 6 at Chattanooga, Tenn.

He also had been vice president and engineer of the New York Brick Handling Corp. and the Mechanical Brick Handling Co.

PERSONALS

John S. Barry has been appointed market research analyst, a new position, for Gladding, McBean & Co., Los Angeles, according to an announcement by **C. W. Planje**, president.

Barney Smith, of the Vandalia, Mo., plant of Harbison-Walker Refractories Co., has been promoted to assistant superintendent of the new H-W plant at Hammond, Ind. The Hammond plant has been under construction with operation to begin soon.

The board of directors of **Pacific Clay Products**, Los Angeles, has announced the election of **Mrs. Catherine Van Wart Spencer** as a company director. She succeeds her father, the late **Dr. Roy M. Van Wart**, who for many years was a board member of Pacific Clay.

Three 35-year employees, **John K. Cross, James R. Mills**, and **George Rizor**, all of Factory 6, Midvale, Ohio, head the list of veterans recently cited by Robinson Clay Products Co., Akron, Ohio. Others given awards included, for 30 years, **John J. Jones, William F. Smitley**, and **E. J. McGowan**; for 25 years, **Blair Snook**; for 15 years, **Benjamin Fulp, Helen Oswald**, and **John Police**.

Hanley Co., of Summerville, Pa., has opened a district sales office in Washington Road, in Pittsburgh. The firm also has an administrative office in Gateway Center of the same city.

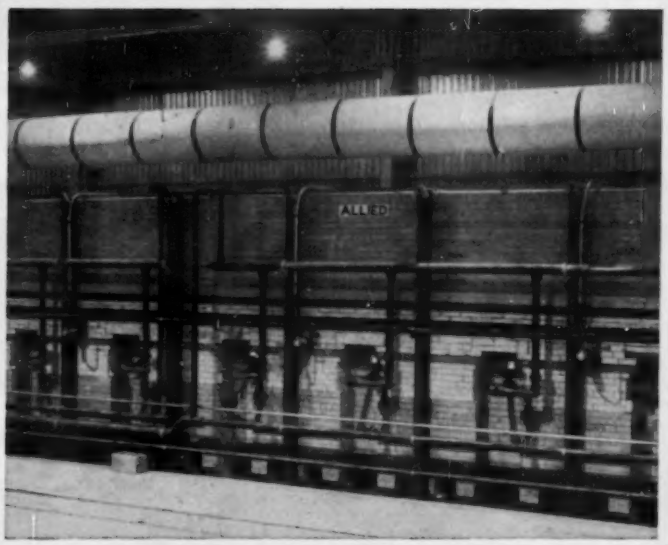
Edwin H. Cooper, board chairman of the Guignard Brick Works, has announced that the Columbia, S. C. firm has declared a regular dividend of 25¢ and an extra dividend of 5¢ on the company's common stock.

Henry E. O'Neal—66, superintendent of the Acme Brick Co. plant at Malvern, Ark., died Dec. 1.

Stillwater Clay Products Co., Dennison Sewer Pipe Corp., and **Junction City Clay Co.** have announced relocation of their general offices as of Jan. 2 to new, larger quarters at 20800 Center Ridge Road, Cleveland 16, Ohio, with the telephone EDison 3-1344.

John R. Gloninger Sons has been established as a distributor of brick, stone and tile with offices in Pittsburgh, according to an announcement by **John Gloninger.** Also in the firm are **Denis McAuley Jr.** and **David Gloninger.**

ANOTHER **ALLIED** KILN INSTALLATION



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According to a recent report, steelwork is going up on a large new building being erected by Harbison-Walker Refractories Co., with the building to house a new tunnel kiln and mixing plant at Portsmouth, Ohio. The building is 260 x 120', steel frame to be covered with sheet metal. Harrop evidently will supply the tunnel kiln.

Another refractory plant is "well underway" in construction . . . that's the new basic refractories plant of the Refractories Div., H. K. Porter Co. Inc. The new basic refractory and water magnesia facility is under construction at Pascagoula, Miss. Part of the work done so far includes the foundation work for three large rotary kilns. A new office building, change and locker room, and material and warehouse buildings are all being built. Power is in; docks are being built; a lot of fill work had to be done to prepare the site, our report said. The Porter headquarters building, in Pittsburgh, was recently "topped off" with the 18-story building to house Porter offices and other companies.

The National Society of Professional Engineers recently published a survey of "Career Satisfactions Of Professional Engineers in Industry" . . . book is available at $1.50 from the National Institute of Ceramic Engineers of 4055 N. High St., Columbus, Ohio, with that price of $1.50 for members; others pay $3.00. The section on engineers revealed that they feel themselves superior in hierarchy to accounting, personnel, public relations people in their companies . . . but feel they're accorded less importance than the production and sales departments. The survey found that the engineers, to simplify the report, weren't too interested in their associations and such activity, feeling that association activity isn't "status building." To quote from the report, "One of the important findings is that 67% of those in the 3-to-6 years experience group, and 76% of those with more experience, felt there were deficiencies in their college training." Among the main items the engineers pointed to in fostering professional recognition by management were: keep engineers informed, ask for their ideas on relevant matters, identify their names with their work, and show how their work fits in the total picture. The report is essentially about engineers generally, not so much on specific types.

A new two page bulletin on "Handling, Storing, Installing Slip-Joint Clay Pipe" has been published by the Clay Sewer Pipe Assoc., 311 High-Long Bldg., Columbus 15, Ohio. Describes and illustrates methods of handling, storing and installing clay pipe with these joints.

The fall meeting of the Pacific Northwest Ceramic Assoc. recently held a meeting in Portland, Oreg., with about 45 attending. Part of the meeting was a tour of Columbia Brick Works, Sylvan Brick Co., and McMinnville Brick & Tile.

A new metal roof has been installed over the drier building of the Irondale works of McLain Fire Brick, Refractories Div., H. K. Porter Co. The roof, 160' square, had skylights; was all-steel.

Another interesting item in way of promotion comes from Jack Carney of Atlanta's Southern Brick & Tile Mfrs. Assoc. Jack sent two shots taken at the 8th Annual Gulf States AIA meeting in Birmingham in Mid-October. SBT sponsored a booth in cooperation with Dean Ramey and the Miss-La Brick & Tile Association. Shown here are Jack; SBT Montgomery field engineer N. A. Anderson; and Jim Lee standing on a brick coffee table that was awarded as a door prize. The SBT men and Ramey report that the 230-lb coffee table, with four small glazed tile inserts, was "quite a hit at the meeting and created quite a lot of comment." The other picture shows a general view of the booth with a tv set on the table. You can note that major emphasis was put on RBM.

Salesmen Taught About Architects and Selling

A new course for building materials and equipment manufacturers is designed to teach their architectural salesmen how to improve their effectiveness in selling and servicing the architectural profession.

The series of schools, established by the Producer's Council, is designed to "develop in the salesman an understanding of the problems and desires of the architect and his associates, and by so doing, create a harmonious and profitable working atmosphere," according to Fred Hauserman, a Council President.

The schools are conducted on a regional basis at universities in conjunction with the school's departmemnt of architecture. Studies will cover such things as "Organization and Services of Architectural Firms," "How Products and Material Get Specified" and "How to Approach the Architect and His Staff."

The courses, of a week duration, have already started, with the first being held the week of January 20 at Rensselaer Polytechnic Institute in Troy, N. Y.

Training in sales techniques will include the salesman's role as a consultant, timing of sales calls, utilization of product literature and other aids, planning sales presentations, etc.

Other courses are being planned in various areas. For further information, either write to SCPI in Washington or to the Producers Council, 2029 K St., N.W., Washington. According to SCPI, only the salesmen of SCPI members and NADD members are eligible.

According to the schedule released, the second course will be held at Ohio State University starting May 19.

Bigger, Better SCPI Sales Tour Uses Fast-Paced Entertainment, Sales Tips to . . .

Help You Get More Sales in 1958

The clay products industry is going to hit the road between February 3 and March 4 with the largest combination of brick and tile salesmanship and show business know-how in history. In New York City, on February 3, the first of a series of SCPI sales conventions and National Association of Home Builders shows will be the opening gun in the campaign.

Although the idea of sales conventions traveling across the map is now five years old, the idea of presenting the brick and tile industry story to home builders is a new concept.

Two Different Shows

The two shows, while entirely different in content, will both feature the same cast of professional entertainers headed by Frank Fontaine, stage, movie and TV personality. The show is being produced for SCPI by MCA Corporation (Music Corporation of America) one of the largest industrial show producers in the country. Special scripts have been written by MCA for the productions and the organization is also directing and staging it.

'The Hard Sell"

The sales conventions theme for 1958 is "The Hard Sell" and there is plenty of it in SCPI's presentation. Many manufacturers got a preview at the Greenbrier Convention in November and gave it their hearty endorsement. Using a troupe of professional entertainers, the all-day sales convention is designed to bring to the industry's salesmen the latest information they need to fight against the tough, competitive market. Of the five anuual sales conventions, this one promises to be the most complete, the most professional. Under the direction of E. F. "Al" Walsh, SCPI Promotion Director, the group of seven includes five professional entertainers and Promotion Department staff man Jack Clark. In each city they visit, they work in close cooperation with the SCPI Regional Director for that territory.

Has Sales Ammunition

This year's agenda includes the latest information on: curtain wall construction, market studies, Reinforced Brick Masonry, featuring new data on blast design application as it is related to "SCR brick" and through-the-wall units for residential use. There will also be a discussion of effective-local merchandising tie-ins with the national program. With merchandising such an important factor in selling today, the clay products salesman will find this an important piece of "ammunition" for his gun in 1958.

The sales meetings will be paced with stops for breaks, a luncheon period and a variety of interesting techniques used to tell the story of "The Hard Sell."

Discussing the sales convention, "Al" Walsh said recently, "The objective of the sales convention is to bring to each man present at least one new, good idea which will translate into increased sales in 1958."

New NAHB Show

"Merchandising Magic with Brick" is the theme of the NAHB show which will be presented on the same national tour as the sales convention. The NAHB show is a fast-paced, 50-minute program bringing the industry's message directly to our home builder customers. The program has been carefully planned in consultation with the NAHB and it bears the "Award of Merit" stamp for a Joint NAHB-Producers' Council committee. The show is one of only six which have received the official seal of the group, indicating that it has been recognized as an outstanding informational meeting directed to the home builders for presentation to their local chapters.

The show will feature skits, original lyrics and dramatizations to put the points over. How to develop the fullest possible use of brick in modern residential construction is told in a brand-new color strip film. The film shows original brick ideas and applications developed by two prominent architectural designers—George Cooper Rudolph of New York City and Richard Collins of Washington, D.C. Basic idea of the visual presentation is to point out the many easy-to-build brick ideas that can help sell a home to a quality-conscious 1958 home buying public. Narration of the show will be by a SCPI staff man.

In addition to the above features, the NAHB "Merchandising Magic" show will detail for the home builder the kit of materials the clay products industry offers for on-site merchandising.

It should be emphasized that the NAHB show is not being handled as a SCPI production, but rather as a production of the local sales outlets in each city. These outlets are giving the program full financial support and SCPI is providing the full package at no cost to them other than incidential expenses. It is an example of the coordination between a large national trade association and the local organization. No one of them could afford such a show individually, but in cooperation with SCPI, they are able to reach their local builders with this modern technique of selling.

Local Outlet Effort

Moving the two shows about the country is a masterpiece of production itself. The seven-member troupe moves completely by air in order to keep to the tight schedule of 31 different performances in 19 cities in six weeks. The group will travel approximately 12,000 miles during the swing, transporting 500 pounds of freight. This self-contained unit carries its own complete portable stage, setting, lighting, costumes, sound system and visual equipment. And plenty of spare bulbs for unforseen emergencies. The close schedule is the method by which two different shows utilizing the same talent and stage equipment can be brought to the country.

"The clay products industry is demonstrating that, while one of the oldest businesses in the country, it uses the newest, most modern techniques of getting its sales message across to its customers," Walsh said. "Through the training of an alert sales force, armed with the knowledge of 1958's markets and how to go after them, we know it will be a good year for the industry," he added.

As for reaching the home builder, who accounts for 65% to 70% of the industry's market, Walsh indicated that the brick and tile industry developed the NAHB show as one of the most effective ways of reaching the home builder with our story.

Check the schedule printed here and be sure you know when "The Hard Sell" and "Merchandising Magic with Brick" will be hitting your community.

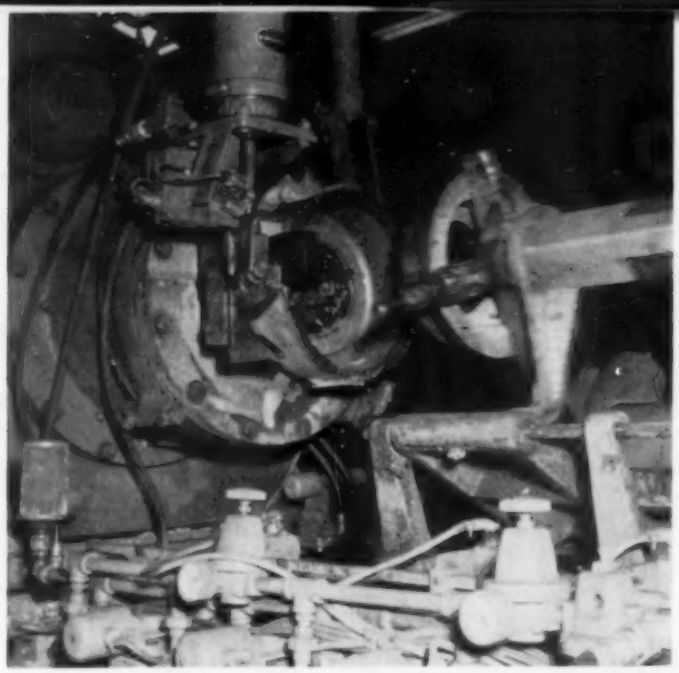
Attend Your Sales Meeting in '58

Below is a confirmed itinerary of the SCPI sales meetings. The "S" after the city name means that the Sales Meeting show, "The Hard Sell," will be held that day. An "N" indicates a showing of the presentation for NAHB members, "Merchandising Magic." If both "S" and "N" appear, both shows will be presented in that city.

February	**3**	**New York City**	**N**
	4	**Philadelphia**	**SN**
	5	**Toronto**	**N**
	6	**Toronto**	**S**
	6	**Hamilton, Canada**	**N**
	12	**Greensboro, N. C.**	**S**
	13	**Charlotte, N. C.**	**N**
	14	**Macon, Ga.**	**N**
	18	**Houston, Tex.**	**SN**
	19	**Dallas**	**SN**
	21	**Denver**	**SN**
	24	**Detroit**	**SN**
	25	**Cleveland**	**N**
	26	**Cleveland**	**S**
	28	**Cincinnati**	**SN**
March	**3**	**Chicago**	**S**
	4	**Chicago**	**N**
	5	**St. Louis**	**N**
	6	**St. Louis**	**S**
	10	**Des Moines, Ia.**	**S**
	11	**Minneapolis**	**S**
	12	**St. Paul**	**N**
	14	**Columbus, Ohio**	**SN**

Famed comic Frankie Fontaine portrays the salesman who hasn't yet learned modern selling methods.

New automatic machinery and palletizing, careful dryer control used in Pine Hall addition. Result:



Here's an action shot of the die closing on the new machinery at Pine Hall's plant addition.

Four Men
Make 1,500 Feet of 8" Pipe An Hour

Some 1,500 feet of eight-inch sewer pipe every hour is being produced by four men as the result of addition of new, automatic machinery at Pine Hall Brick & Pipe Co., Winston-Salem, N. C.

In making the five foot length pipe, three of the four-man crew monitors the extrusion and handling machine; the fourth operates the fork truck that moves pallets to the dryer.

New Building

The installation of the new machinery is in a 60 x 136' building adjacent to older parts of the plant. The new building was built of solid brick with steel trussed, metal covered roof. Pine Hall today maintains three machine lines for pipe and tile forming, wtih the oldest part of the plant equipped with a steam press for larger-size pipe.

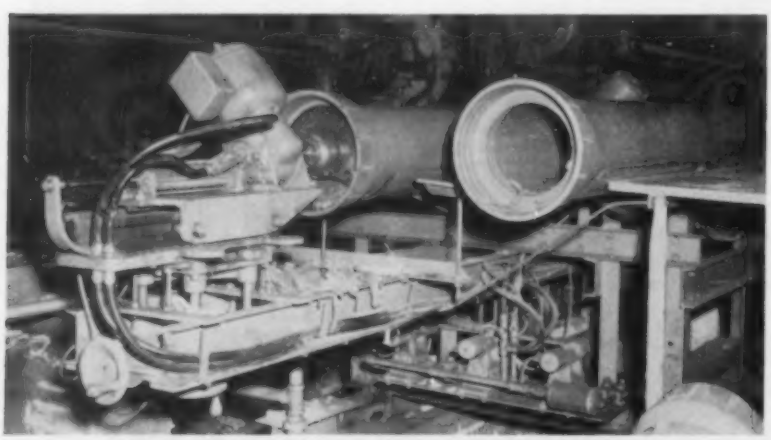
A three-story, steam heated dryer house is used for the cutput of the steam press.

The second section of the facilities uses a J. C. Steele extruder for 8", 6", and 4" pipe and flue tile. This latter production center uses Pearne & Lacy finishing machinery and non-automatic handling devices. The dryer used for this group of machines is a tunnel with standard dryer cars.

Clay, properly blended and ground, is delivered to a 64-yard steel bin placed outside of the mill room building. The clay is fed from the bin by a Steele feeder and moved by conveyor directly to the pug-sealer.

An automatic compensating water spray increases the effectiveness of a double-pugging type of operation at Pine Hall's new section. A throttle valve, selected for accurate control, passes the tempering water with great force in a fine spray to a pug-sealer. The tempering of the clay is better than could be attained with less advanced systems and a more consistent clay condition is maintained at the extrusion end. **(Ed. Note: A complete story on this system was given in the April, 1956 issue, page 65.)**

Partially tempered clay is discharged from the pug-sealer through the sealing auger to a combination pug mill and extruder. The 40FV machine, after receiving the clay from the pug sealer, further tempers the clay, compresses it through a die, shreds and delivers it to the auger portion of the machine under 25-28" of vacuum. The same vacuum is maintained in the auger section of the extruder.



The finishing position of the automatic pipe line.

Denser Body

This long period of exposure to vacuum results in a denser, stronger body, less subject to damage in later stages of manufacture. Tempering action under vacuum can be observed through the view ports on the machine. The material seems to change its characteristics and has the appearance of corn meal or saw dust. The extruder combination is powered with a 200 hp motor, delivering power through an air-operated clutch.

The extrusion cycle begins when the spider on the former is advanced, carrying the internal part of the bell die to the extruder and locking. Immediately, the air-operated clutch is engaged and the bell of the pipe is formed. When the bell die is full, it unlocks. At the Pine Hall plant the clutch is disengaged at the instant the die is unlocked, with this procedure eliminating wear on the locking mechanism.

The clutch remains disengaged for only a fraction of a second and as power is re-applied, the pipe is extruded while being supported by the former unit.

When the proper length of pipe is measured, power again disengages and internal knives cut the pipe. An automatic off-bearing machine moves the pipe from the finishing machine and the extrusion cycle can be repeated immediately.

Finishing steps include sizing of bell and spigot ends, and an air blast removal of any clay scraps. The pipe are then placed on the stacking machine.

Automatic Palletizing

The placing of the pipe on the pallets is completely automatic. Sixteen 8" pipe are placed on each pallet with vacuum lift placing four pipe across the width of the pallet by indexing. The pallet advances then one pipe space and the process is repeated so long as the loader receives pipe from the finisher.

The layout of this machine room was done by Pine Hall after studies and conferences with the Steele people, who supplied the water supply system, pug-sealer, extruder, off-bearer, former, finisher and pallet loader.

Forked to Dryer

The filled pallets are moved by Clark fork truck to the dryer as the next step in production. The dryer location was specifically chosen so as to minimize transportation distance.

The periodic dryers, 20 x 90', hold 63 pallets or a total of 1,008 8" tile in each of five separate dryers. These dryers, designed by Robinson Ventilating, are of brick construction with pre-fabricated concrete beams used in the roof. Spaces between the beams are filled with tile.

Floors of the dryers are a grid of 2 x 6's, set on edge over a system of flues and air ducts, with a ¼" gap maintained between the boards with spacers.

On each side of the entrance door of each section a supply duct carries air from the warm air furnace on the roof to the flues under the floor grids. Air moves from the floor in all parts of the chamber to several exhaust ports in the ceiling with these ports ducted to a furnace which connects directly to the intake side of the fan.

Units in active use are under both temperature and humidity control during the 48-hour drying cycle. Ideal curves of temperature and humidity are designed and transferred to metal templates.

Templates for both dry and wet bulb temperatures are placed on each of the three Brown program controllers. These instruments record and control dryer conditions, with temperature controlled by adding or reducing fuel delivery to the furnace; humidity by the amount of saturated air being discharged from the system.

For each dryer, a J type Robinson fan was set-up, powered by 25 hp motors. The furnace associated with each system is equipped with North American burners, using oil as fuel with LP gas for ignition. A Wheelco flame control device protects the furnace from flameouts.

When dry, the pallets of tile are transported to the kiln by fork trucks. After a three-day firing cycle, the pipe are removed to the storage yard to await shipment.

Twelve inch, and larger, pipe are set in the kiln directly with lift trucks that have been equipped with cradles that allow the pipe to be easily handled.

Adaptable Facilities

While the demand for the longer lengths of 8" pipe has resulted in extended production runs of this pipe, the new facilities at Pine Hall are easily adjustable to other sizes and lengths. In 4" and 6" pipe, the length must be reduced to four feet because of the difficulty of making the longer lengths stand up.

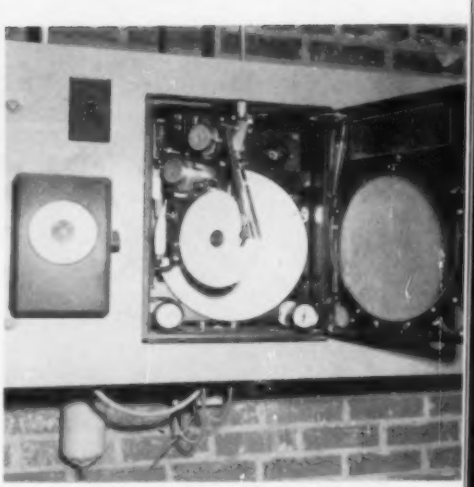
A sales area of North Carolina and Virginia is covered by seven salesmen who sell material from all three company plants. As most of the production is sold within a hundred mile radius, a nine truck fleet is maintained for delivery. Six tractor units and three tandem axle trucks allow flexibility of delivery service.

Currently Pine Hall is enlarging grinding facilities to allow the full potential of use of the new machinery. By using clay from three pits, the plant is able to secure a blend of clay of uniform properties better suited than use of one clay alone. The road hauls range from one mile to about 12. The company has two shovels with ¾ yd. buckets; two TD14's with pans; and a HD 5 front end loader among the three pits.

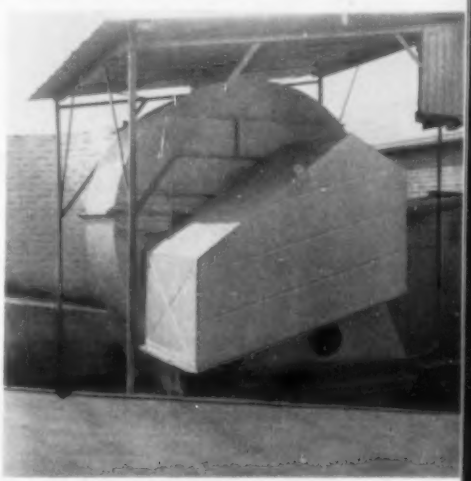
As the nearby brick plant also uses material from the same pits, all of the expense is not charged to the pipe production. The mining operation includes light trucks used for transportation to the pipe and brick plants.

Storage of Clay

The storage of clay is done so as to mix the different clays by the time they're loaded into the hopper of the reciprocating feeder. This feeder discharges onto a conveyor which in turn feeds two Miller hammer mills powered with two 30 hp motors each. After passing 3 Tyler heated vibrating screens, the clay is put into one of two identical bins for storage.



Brown instrument, dryer program controller and wet-dry bulb temperature recorder used at Pine Hall.

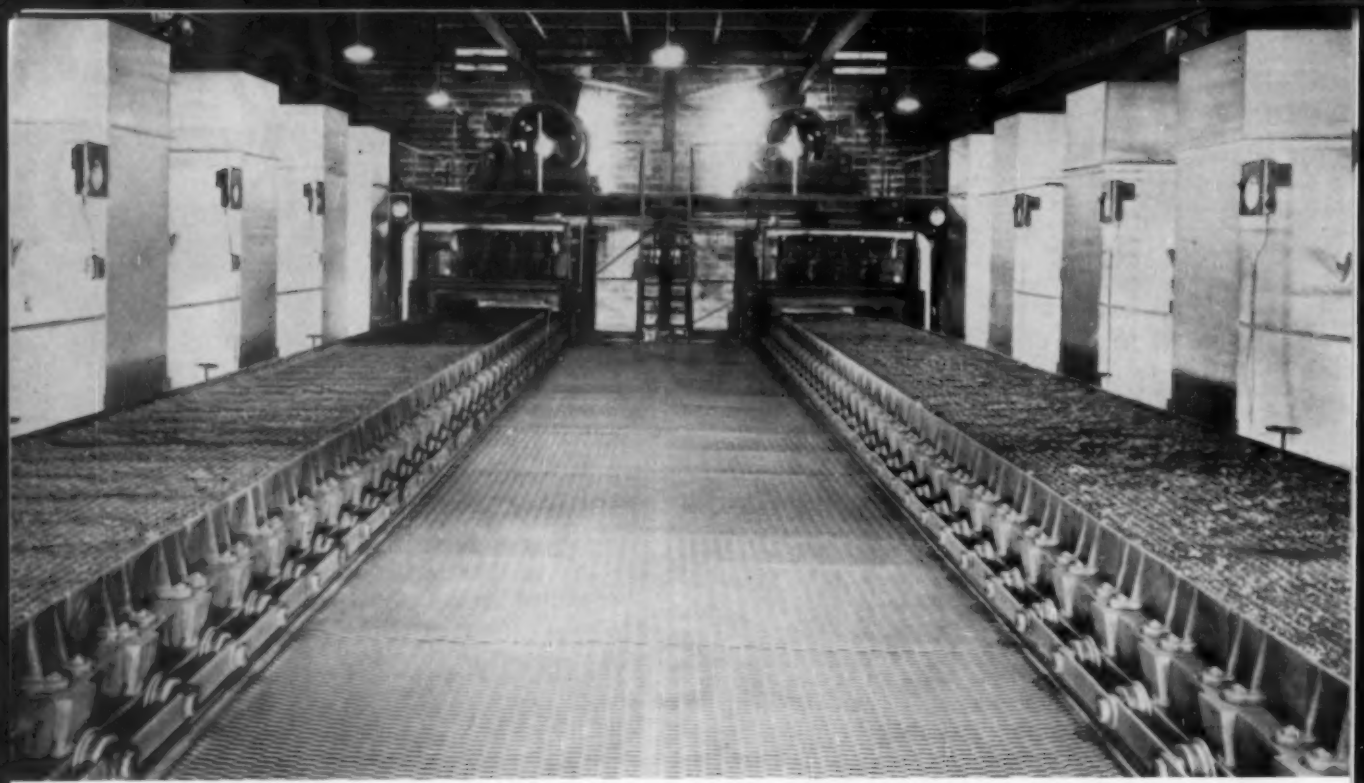


Robinson J-type ventilating fan used on the Pine Hall dryer.

Vice President W. P. Steele with President Flake Steele.

These bins are fitted with disc feeders and, in use, one bin feeds the plant while the other bin is being filled from the grinding department. An additive is used at the rate of ½%. Added in front of the hammer mill, this mate-

Continued on page 93



Twin sintering grates at the Aglite plant.

New Aglite Plant

Produces 1500 Cu. Yds Per Day

Leftwich-process lightweight aggregate plant uses twin sintering-hearths to get high production; plans plant addition; has convenient transportation facilities.

Concrete construction in the New York Metropolitan area, currently handicapped by long-distance haulage problems, should find the situation considerably eased by the availability of the more than 1500 cubic yards of Aglite being produced daily by the first Sayre & Fisher Aglite plant now in full operation at Sayreville, New Jersey, twenty-eight miles by road, rail or water, from New York.

Sixth Leftwich designed plant to go into operation, the new lightweight aggregate producer built on the 1400 acres of Sayre & Fisher clay holdings, is the largest and, according to its designer, the most efficient of its kind. Originally estimated for a three-shift capacity of 1500 cubic yards daily, the new plant approached that figure on a two-shift operation and will greatly exceed the original estimate when three-shift operation is attained during November. Labor and other production costs are lower per cubic yard than in any other Leftwich designed operation.

The entire plant was designed under the supervision of Frank Leftwich, president of Aglite Corporation of America. Construction of the main building was awarded to a local contractor. The twin-sintering units were built by Toma Machine & Supply of Memphis, who also installed most of the machinery and conveyors. The plant, adjacent to the 106 year old brick operation that has made Sayre & Fisher famous, lies parallel to a railroad spur and the deep-water Raritan River providing efficient and economical shipping facilities by rail, road or water.

In designing the plant the greatest attention was given to the installation of automatic equipment designed to cut the necessary personnel to a minimum. For example, the twin-eighty-five feet sintering grates are controlled from one master panel and need a single man for their operation.

Clay Preparation

The clay is taken from the same open mining operation that supplies the clay for the S&F brick kilns. It is dug with a two-yard shovel and hauled to the Aglite plant by the company's diesel trucks. Noteworthy in this instance is the fact that, with the advent of Aglite production the Sayre & Fisher brick operation is helped considerabaly in that clay, unsatisfactory for the current brick being made, is excellent for lightweight aggregate so that a higher standard of clay for brick manufacture can be maintained without penalty.

The total cost of mining and hauling to the plant is comparatively cheap, averaging approximately 25 to 27 cents per cubic yard. The clay is dumped into a storage shed, 50 by 100 feet which contains an ample supply for three-shift operation on a five-day basis if necessary. A D-6 Bulldozer charges the raw clay onto a conveyor which feeds it to a Mud Hog distintegrator. A second conveyor under the initial grinder carries the ground clay to a surge hopper the contents of which control the initial grinding operation as in other Leftwhich designed plants.

When the hopper is full a limit switch shuts off the apron feed and, when the hopper is emptied to a designated point, the same switch then cuts in the apron feeder bringing more clay to the hopper.

Coal Handling

Coal is brought by rail directly to the plant and stored in a silo adjacent to the initial mixing operation. Two

Jeffrey disc feeders are used to charge the pulverized coal into the sinter charge of which it comprises approximately eight percent.

Raw clay, coal and return fines are fed, at approximately the same time, to variable speed belt conveyors which carry the sinter charges to the continuous drum mixers in the main sintering building where water is added in sufficient quantity to pelletize the mixture properly.

Both water and return fines must be added carefully in that the quality of the final clinker depends upon the accuracy of the mix. The amount of return fines must be accurate in order to assure a steady flow of full-depth, eight-inch clinkers at the discharge end of the grates and to prevent an excess of new fines.

The water is introduced into the drum mixer by a single pipeline containing four sprinkler heads. The pelletizer mixing blades are a screw-type unit revolving counter-clockwise while the drum or shell revolves in a clockwise direction. The prepared mix feeds into swinging spouts which charge the mixture onto the grates in an even bed approximately ten inches deep.

Twin-Sintering Units

The twin-sintering units, designed by Frank Leftwich and built and installed by Toma Machine & Supply Company, are the largest being used for the production of lightweight aggregate. The grates are 85 feet long and five feet wide. Seventy-three feet of each grate carries the charge and is exposed to the drafts from wind-boxes which pull the air downward through the charge.

The grates are driven by 15 hp motors, reduction gears regulating the speed of travel to approximately seven feet per minute. The charge is lighted under an ignition hood built of refractory brick. Four oil burners are used for this purpose in each grate.

As the charge moves forward it is progressively burned downwards until, at the end of the grate, a uniform clinker approximately eight inches thick remains. There are seven wind-boxes on each of the two Aglite grates, each connected through dust-collectors to suction fans. The area over the first wind-box is maintained at 5" of draft but can be varied at the discretion of the operator.

Clinker Treatment

The amount of draft is increased progressively with the final two and sometimes three boxes providing the maximum draft obtainable, usually ranging between 25 and 26 inches depending upon the homogeniety of the charge currently on the grate. Coated steel blades are used in each fan to reduce maintenance cost and problems due to acid content in the exhaust gases.

As the clinkers leave the grate areas they slide over 5 x 8 Simplicity gyrating screens which separate the good cakes from the return fines which are carried back to the original mixing operation by return conveyors which run beneath each of the sintering grates. The clinkers pass from the gyrating screens to a metal conveyor outside the main building which carries them to a stock pile where they are left to cool.

Crushing the Clinkers

The cooled clinkers are charged, by means of a stiff-legged derrick, into a crushing plant consisting of two double-roll crushers with a scalping screen in between. The crushed aggregate is elevated by a bucket elevator to a 5x12' Simplicity double-deck, ball-tray screen where the material is sized into coarse, ¾" to ⅜"; medium, ⅜" to 5/16" and fines, less than 5/16". The three grades are stored in silos twenty-five feet in diameter and fifty-two and half feet high. Each silo holds approximately 800 cubic yards of the material.

Loading

Loading is done by feeding onto a reclaiming conveyor, 197 feet long, which leads to a truck loading chute and to a 100' cantilever barge-loading conveyor extending out over the river. Railroad cars are loaded directly from the silos by gravity feed. A 30-yard trailer truck can be loaded in seven minutes and a 800-yard barge-loading was made in approximately four and one half hours.

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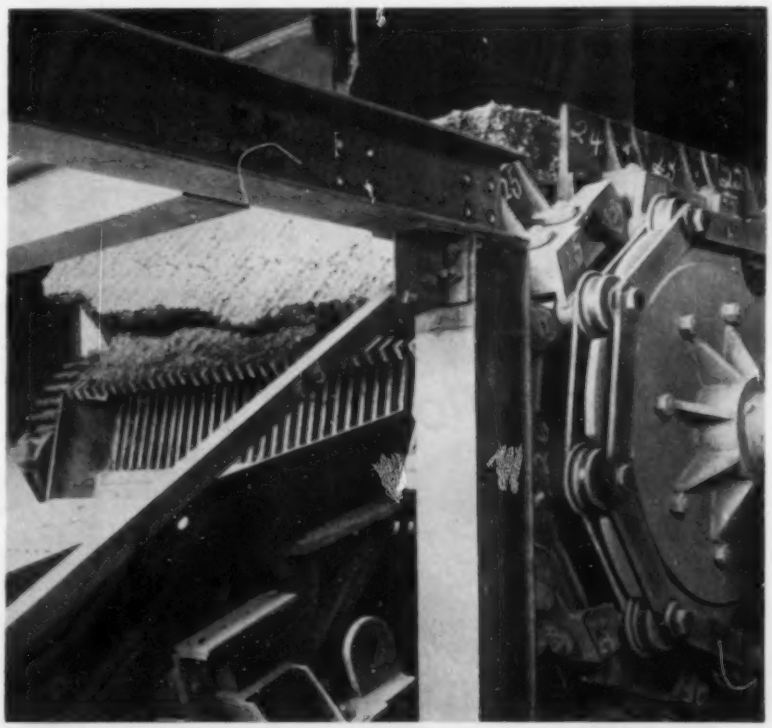
Sayre & Fisher president Junker talks with Aglite president Frank Leftwich.



Discharge end of the main sinter machine showing clinker leaving the grate.

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NOTE: This press can be adapted to making cored brick

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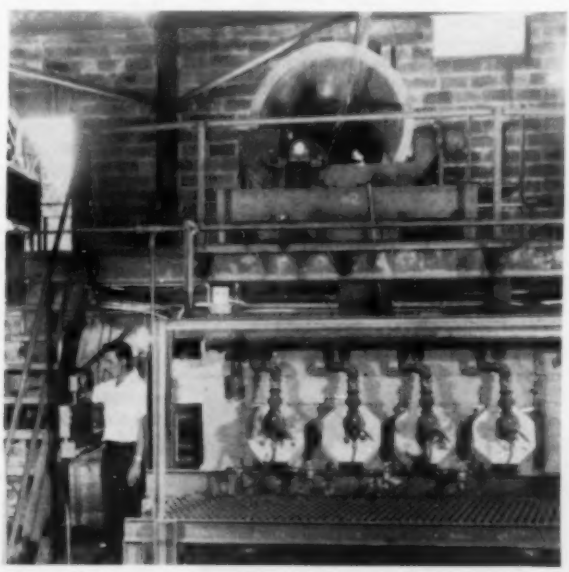
First barge load of Aglite, 800 yards, was recently shipped to NYC area.

Equipment Used at Sayre & Fisher Aglite Plant

Steel Apron Feeder, Crushers, Mud Hog Distintegrator, Steel Apron Conveyor, Bucket Elevators & Coal Feed.....Jeffrey
Belt Conveyors & Feeders.....Barber Greene Co.
Sintering Machines & Drum Mixers.....Toma Machine Supply Co. Works
Fans & Dust Collectors.....American Blower Corp.
Single Deck Screens.....Simplicity
Concrete Silos.....Marietta Concrete Co.
Truck Deck Scale.....Howe
Ignition Equipment.....Hauck Manufacturing Company
Indicating Pressure Gauges.....Minneapolis-Honeywell Company



RIGHT: Ignition hood, mixers, and control panel.

BELOW: Overall view of plant.

AGLITE Continued

The product is now being distributed generally in the new York and New Jersey metropolitan area. Current usages call for its inclusion in the manufacture of premium-quality concrete blocks, poured concrete walls and floors, pre-cast concrete and faced blocks for interior construction.

The Aglite office building, adjacent to the plant, is constructed entirely of Aglite concrete masonry and serves as an excellent demonstration of the decorative values attainable with Aglite Concrete Masonry.

The company plans to break ground for a second identical Aglite plant in the near future. It will be located on the site so as to utilize the existing loading facilities.

Hot clinker being conveyed from machines to storage.

Better Product, Higher Capacity Designed Into New Guignard Plant

Plant combines tunnel kiln, better methods for higher efficiency; product strapping, central location means good delivery set-up; up-dated plant plans further emphasis on color developments.

New colors, new textures and better methods are some of the results that Guignard Brick Works is receiving from its major plant expansion. The present management of Guignard has taken the assets of long experience and progressive thinking and blended them into the new plant, built by the side of the old.

With the exception of the grinding and storage of raw clays, the old and new operations are independent so far as production is concerned, with each able to operate at any level without regard for the other portion of the operation.

A comparison of the old plant with the new shows what can be done to improve products while reducing costs by following a plan to take advantage of methods and materials that weren't available to the industry in the past.

Guignard was a family owned enterprise until 1956. At that time, part of its stock was sold to prominent business men in Columbia, S. C., site of the plant, and plans were laid to increase the plant capacity.

The expansion provided for 60,000 sq. ft. of new buildings housing a new machine room and the new Interkiln-Salgo kiln-dryer. Provision was made for mechanical handling and strapping to improve handling and to put a better product in the customers' hands. In addition to this, the company embarked on a color development program to meet the increasing demand for color brick.

Before the modernization, the plant used gas fired periodics with additional production of a Youngren kiln of great age. The new facilities were constructed so as to allow the portions of the old plant that were in good condition to be retained.

Standing in display room at Guignard are, from left, James Parker, supt.; Dan Long, secretary-treasurer; L. V. Bruno, vice president-general manager; L. Jim Taylor, sales manager. Company stresses color line in sales.

Guignard takes shale from a tract that it owns six miles away. In the pit the plant uses a Case diesel tractor to pull a 5-yd. Bee Gee hydraulic pan. They also keep a D-4 Caterpillar available to scour the shale. Because of a combination of large hauling and storage capacity, there's no need to work the pit during rainy weather.

Pit Six Miles Away

When brought to the plant, the clay is either placed in open storage close to the primary feeder or put into the feeder for immediate use. The feeder, a hydraulically reciprocating device, is sunk into the ground for easy unloading of the trucks. This feeder discharges material onto a conveyor belt which carries the shale to a Maddox single roll crusher, powered by a 40 hp motor.

After initial sizing, the coarse material is conveyed to a shed where it can be placed in storage, or if the material is to be used at once, the conveyor can be discharged onto an apron feeder which supplies the final grinding operation. If material is being used from the coarse storage for the rest of the grinding operation, a front end loader is used to put clay on the apron feeder.

Four Heated Screens

For final grinding, material moves to a 6' American rim discharge grinder after passing over a scalping screen. The fines separated by the scalping screen are bypassed around the rim discharge grinder and go, with grinder output, to a battery of four heated Leahy vibrating screens, which are in a closed circuit with tailings going back to the grinder.

Because of an amount of quartz stones, the operators have installed a plow and a cross belt used to remove the recirculating load from the grinder-screen circuit.

Since the quartz is difficult ot reduce in size to pass the 8-mesh screen, it builds up in the circulating load. When this happens, the operator stops the clay feed to the rim discharge grinder and the circulating load is ground until most of the remaining material in the circuit is quartz. This

Centralized control panel at Guignard for cutter, pug, etc.

quartz is then plowed from the circuit belt and the cross belt removes the shot load.

Flexibility in Grinding

From the screens, the clay moves by overhead conveyor to the ground clay storage building, which is 30 x 120'. Three areas for storage allow the plant a maximum of flexibility in grinding and sizing and almost complete independence from the weather.

The ground clay is moved from storage by a front end loader to an Even-Flow feeder which was selected for its uniform flow rate. The feeder discharges on a 150' conveyor which takes clay to the machine room. At this point, soda ash is added to increase dry strength and to improve the product, with addition being made by a simple agricultural feeder.

The conveyor belt discharges into a Steele 50F open pug, with tempering water added under controlled high pressure through an accurate valve. The man at the cutter controls this valve since the accurate clay feed and water control free the pug mill man for other duties.

Following initial pugging, the clay moves to a Steele 50FV vacuum pug mill for further tempering under 26" of vacuum. Moving from the pug through a shredder, the clay is finally extruded with a Steele 50 extruder while still under vacuum.

Makes Several Textures

Guignard makes several textures, with a layout planned to expedite texture changes. Any waste material from the texturing operation is diverted to a short belt which moves waste to a bin for transportation away from the machine room.

The operation of the entire room is controlled by one man, the one at the cutter, who has a central control board giving him control over each machine in the room. He also has a "panic" button which will stop all motors in the room instantly and together. He has control of the 100 hp motors that drive the pug mill and the 200 hp brick machine motor; he also has pressure gauges for water supply and ammeters to indicate the load on each motor.

Cutting and Sanding

The #18 cutter is equipped with an "A" reel for 8" brick productoin and with a "C" for roman or norman. If the schedule calls for a sand finish, sanding is done at the discharge end of the cutter as the brick pass onto the off-bearing belt.

While provision was made for 7 tunnel car tracks at off-bearing, only 4 have been needed by the six off-bearers who set 65,000 brick from belt to cars in less than 8 hours.

Fans, heaters and florescsent lighting were installed in the area to insure good working conditions.

The kiln cars are pushed under the belt by Engineering Assoc. hydraulic pushers, who also built the kiln cars which are equipped with Sanford-Day wheels.

The original plan called for the 6' 8" x 10' cars to be topped with solid blocks. Experience has shown a high loss rate and a change was made with cars being re-topped on a maintenance basis with Paco car tops.

Controlled Drying

The cars, each with 3,600 brick, are pulled onto the transfer car from storage tracks and placed in the 24-car dryer. The dryer has two tracks in line with the kiln and operates on a schedule of 48 hours for drying.

The dryer is equipped with mercury thermometers at two positions as well as wet-dry bulb thermometers at two places. Circulation through the dryer is maintained with five Robinson Ventilating fans: one for exhaust, one for supply, and three for recirculating.

The dryer was designed to maintain humidity at 65% at the entrance end and temperature of 400 deg. at the warm air supply. Adequate fans and instrumentation allow maintenance of a re-selected set of drying conditions. Interkiln-Salgo designed and built the kiln-dryer combination.

252' Long Kiln

The 252' tunnel kiln was designed to fire 2050 deg. Production was intended for 40,000 brick per day in kiln designing but actual capacity has exceeded that some 10%; it's believed that total capacity is greater than any production figure so far reached.

The kiln is equipped with dual-feed Eclipse burners, using natural gas as primary fuel with oil for standby.

The furnace zone temperrture is controlled by the air supply to the burners. With this system of control, a dual supply of air is delivered to the burners under a high and a low pressure, with a Leeds & Northrup

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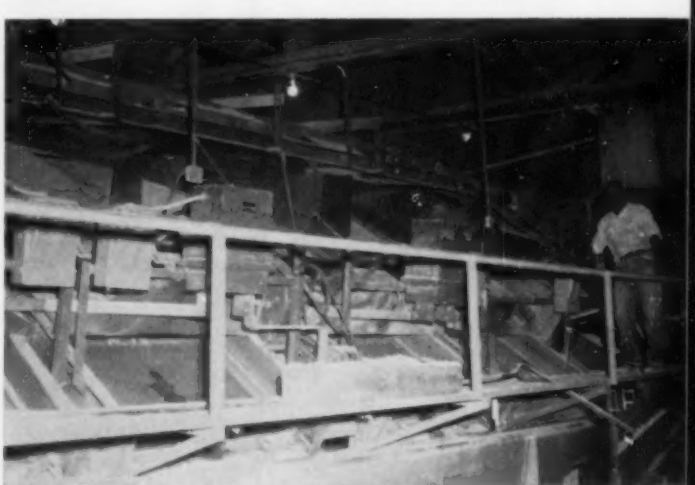

Four heated Leahy screens are used.

GUIGNARD Continued

controller operating valves to allow either high or low pressure to enter the burner, thereby establishing a higher or lower heating rate depending on need.

Continuous Recorder

A continuous recorder is used at two points in the furnace zone along with a non-recording thermocouple installation in the pre-heat and cooling zones. One interesting feature is inspection doors to allow ware to be observed at critical areas of the kiln.

The exhaust fan is directly over the entrance end of the kiln, while flues run below the hearth, which salvages heat ordinarily lost, for use in the dryer. The pre-heating section of the kiln has two recirculating fans which pull the hot gases through a checkered arch and discharge them downward through the double wall of the kiln back into the setting through special ports. The bottom burners are located at the hearth line; the 6 top burners are set on a 45 deg. angle jetting upward toward the crown in order that added turbulence and circulation will take place.

Cubed and Strapped

When the ware is removed from the kiln, the brick are taken from the cars, selected, put in 500-brick cubes and strapped. These cubes are then moved to storage by Clark trucks with standard forks. If the brick is to go into stock without strapping, they're removed from the car with Bickerstaff forks.

At left is Superlite unit used. BELOW is view of strapping section of plant.

The Guignard production has historically been absorbed in Columbia, but with the added production, the management is enlarging the sales area. Rail connection is made with the Southern Railroad with a one-mile spur.

Deliveries in the Columbia area are made with both trailers and bobtail trucks which are equipped with Superlite Unloaders. The company enjoys a high utilization of its trucks since the plant is within a mile of the center of Columbia. With this short distance and the brick strapped, the company gets quick turnaround coupled with short trips.

The central location of Guignard has been used as a public relations factor, with the buildings facing the highway constructed of face brick. They're also landscaped and the storage yard is kept clean to make a good impression on the public passing by.

Increasing demand is also being noted for the new color line developed at Guignard. Their method allows for application of prepared sands to the surface of the red body. The sands have been produced in several colors ranging from white through the pastels and including black. When these surface coatings are combined with textures, face brick are made that meet with high public acceptance. This advance in products has intensified the development-thinking of Guignard, who expect to announce further innovations in high quality face brick.

Company History

In the company's history, South Carolina pioneer John Gabriel Guignard settled on the Congaree River, across from the townsite of Columbia, early in the 19th century. He produced hand made brick as early as 1801, which is believed to establish Guignard as the oldest continuous manufacturer in the country.

During the War Between the States, production ceased but after the war, G. A. Guignard, great-grandson of the founder, resumed operation and managed the plant until his death in the 1920's. He was succeeded by his brother, C. G., and his sister, Miss Susan R. Guignard, until her death in 1955.

In 1956, stock was sold to a group of prominent Columbia businessmen. The increase in the number of stockholders brought outside people to the Board of Directors although the Guignard family retained a substantial interest.

L. V. Bruno, a Rutgers graduate, is vice president and general manager. Dan Long, long-time employee, is secretary-treasurer and office manager. A Clemson ceramic engineer, James W. Parker, is superintendent and L. Jim Taylor is sales manager.

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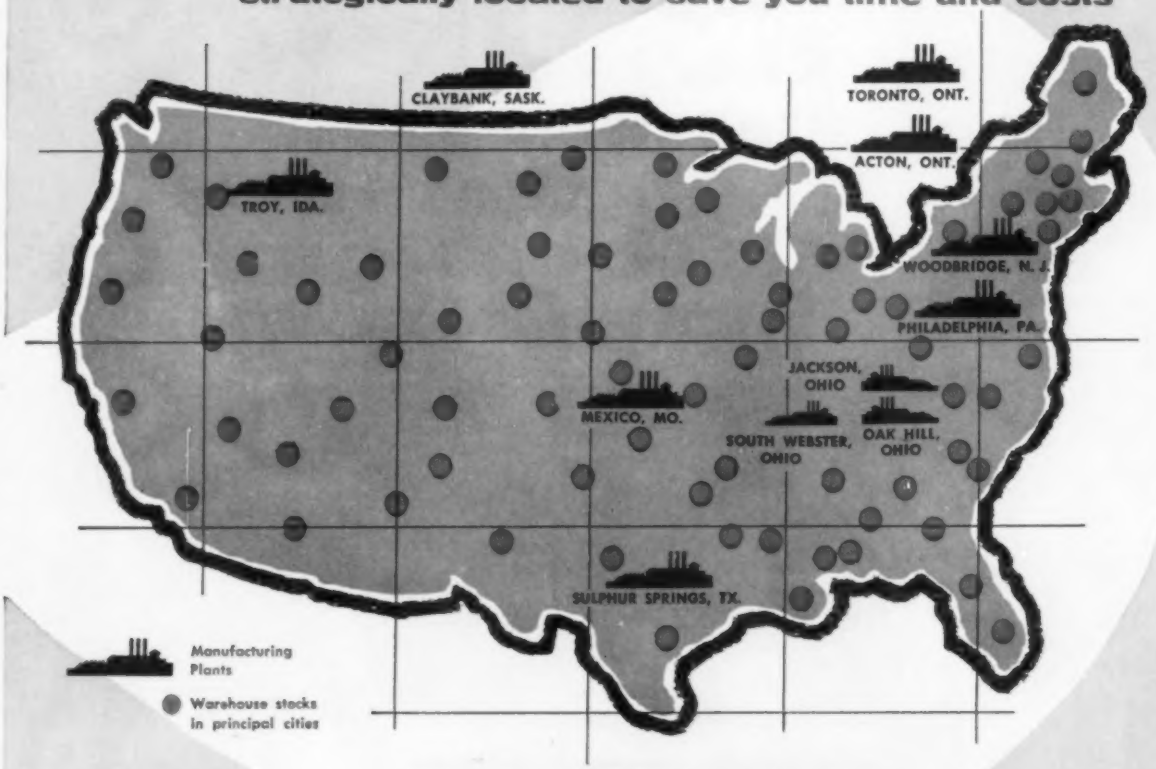

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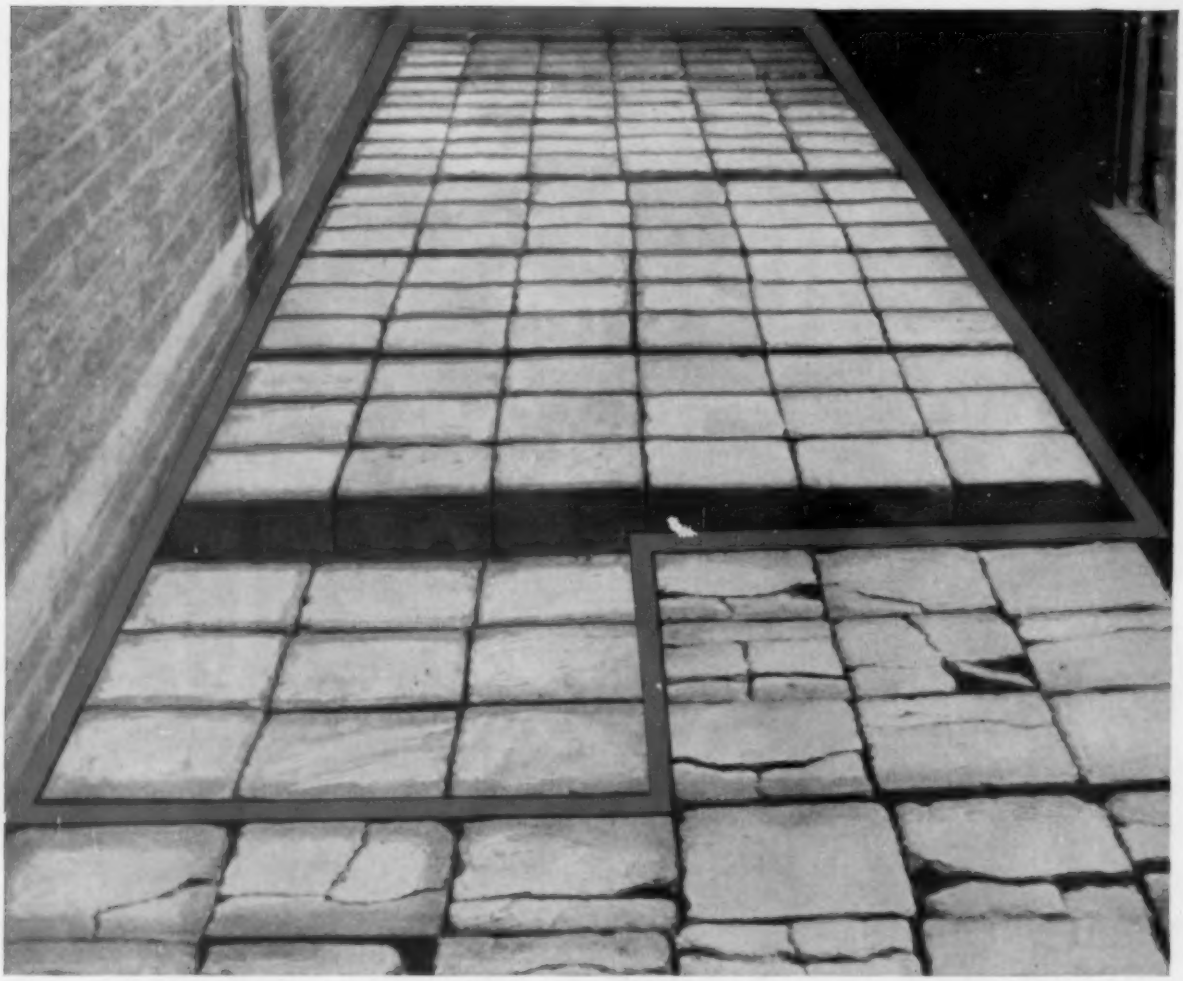

CAR BLOCK LIFE INCREASED MORE THAN 200%. Illustration shows conventional car blocks (foreground) after only one year of service. Compare their condition with that of Remmey SKC car blocks (outlined in red) after three years on the same operation.

REMMEY SKC CAR BLOCKS

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A leading manufacturer of building brick found that conventional car blocks cracked and crumbled in six months and had a useful life of only one year. Replacements were expensive and necessitated inconvenient shut-downs.

Dissatisfied, the manufacturer switched to Remmey blocks. Company records prove that the Remmey SKC car blocks shown here lasted more than 200% longer without cracking or spalling. They have been in continuous use for more than three years and show little sign of wear.

Possessing an extremely low coefficient of thermal expansion, Remmey SKC blocks have greater resistance to thermal spalling, especially during fast firing cycles up to cone 12 (2435°F). In addition, their considerably greater strength results in improved resistance to mechanical abuse.

Why be plagued with high car block replacement expense? To cut production costs, call on Remmey for superior quality car blocks. Richard C. Remmey Son Co., 400 Hedley Street, Philadelphia 37, Penna.

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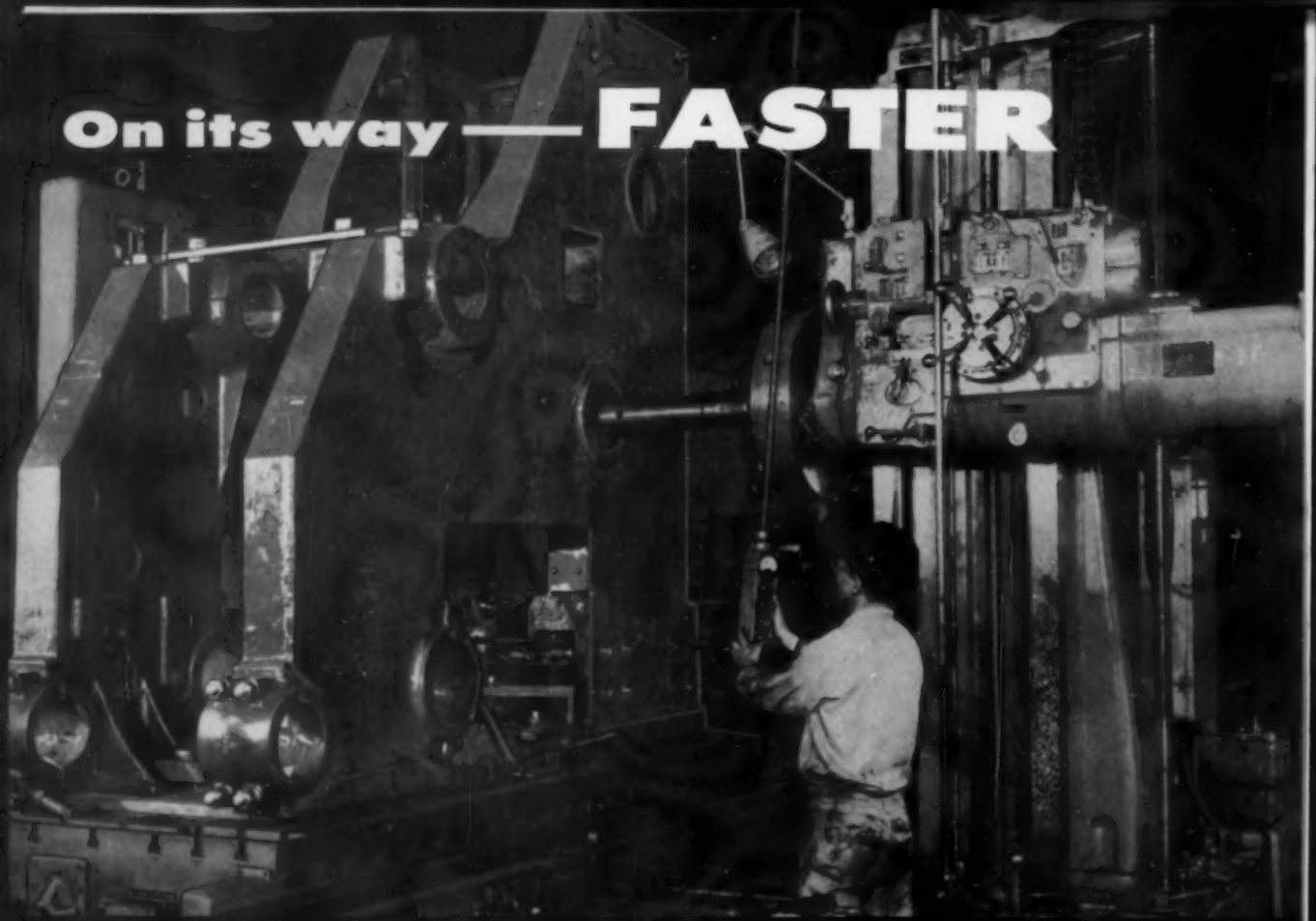

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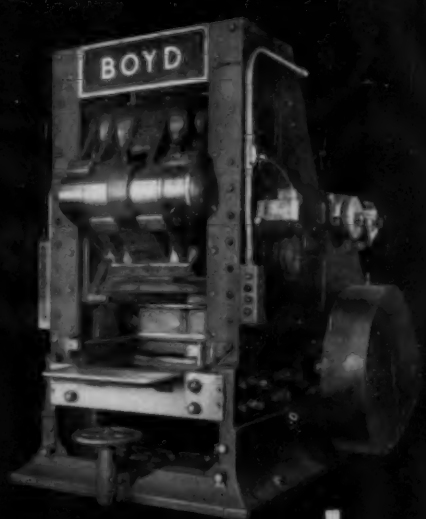

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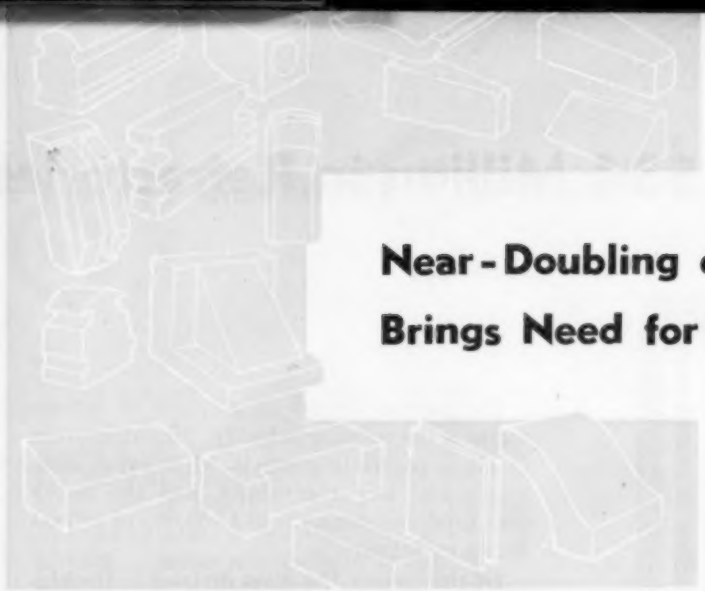


Near-Doubling of Refractories Industry Brings Need for More Public Attention

The Refractories industry in the last decade has increased tremendously in stature. Its production has almost doubled. The quality of the products has improved tremendously. New materials and new approaches to using older materials have been discovered.

Its plants are the most modern in the entire world, with continuing aid to this end by the various suppliers of equipment. And the industry has organized into a cooperative group through The Refractories Institute. All in all, the industry is in strong hands.

Realizing the potential growth as early as World War II, BRICK & CLAY RECORD decided to lend a helping hand. Attention to the industry was needed. In 1944, therefore, B&CR published its first Refractories Issue. This issue set off a chain of Refractories Issues publicizing the industry which have appeared every January since, with this being number 14.

One of the greatest needs for the industry even now is greater general knowledge of the industry itself, of its products and potentials. To increase such knowledge on the part of industry, the public and the government, this issue is dedicated since it's distributed to government officials, users of refractories and the public press.

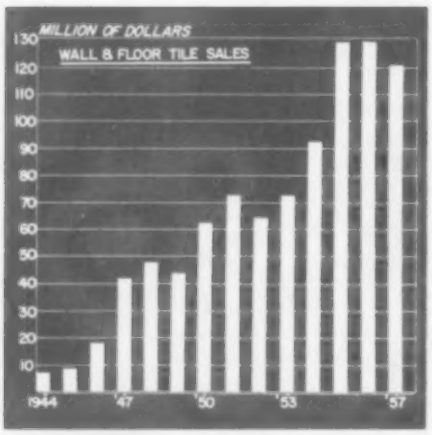
An industry is measured by the quality of its trade paper. A strong trade paper indicates a strong industry. A trade paper is a vital part of an industry, fighting for the industry and representing it to all outsiders. Every issue of B&CR, and especially this January Refractories Issue, is aimed to put this industry's best foot forward.

Bankers, investors, government departments, management engineers and others come to B&CR for statistics, advice and information on the Refractories industry. It's a note of confidence that B&CR is a strong industry trade paper representing a strong industry.

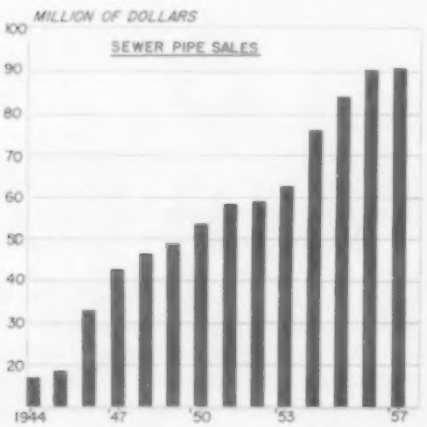
A strong industry also attracts good men to its fold. The refractories industry is making every effort to interest college engineers to make their careers in the industry.

These pages are pointed to the users of refractories, showing them what the industry supplies, what it will have to supply in the next ten years. This issue answers many questions that users have about refractories.

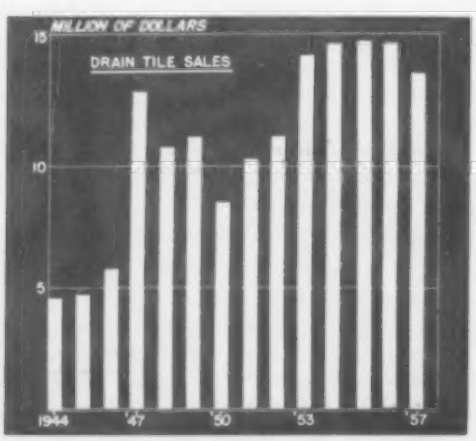
Ceramics Requires $34 Million in Refractories



Wall and floor tile grows steadily with increasing home construction . . .



Sewer pipe goes in relation to population expansion, greater attention to sanitation, conservation . . .



The second largest single user of refractories is the ceramic industry. Manufacturers of glass, porcelain enamels, whitewares, electronic and newer ceramics, and the heavy clay products, consume $34,000,000 of refractories each year.

Of this group, the glass division is the biggest single user requiring $18,000,000 of the total. Here is how the business was divided in 1955.

GLASS	$18,000,000
WHITEWARE	8,000,000
ENAMEL	2,000,000
STRUCTURAL CLAY PRODUCTS	3,000,000
ELECTRONIC AND NEWER CERAMICS	3,000,000

This does not include the refractories consumed by the refractory industry itself which is not measured but estimated at a figure near $3,000,000.

Like other manufacturing industries, ceramics has had a phenomenal growth since 1944 when these annual Refractories Issues started. At that time the total production of ceramics was not more than $2.5 billion and now it is at $4.5 billion. Half of the increase is due to inflation but the other half is a physical growth.

Glass rises with cars, homes, greater use . . .

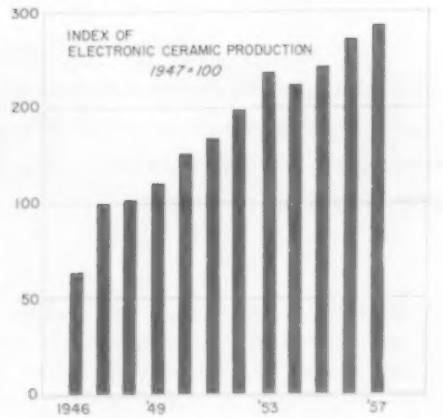
s Yearly; Ceramic Production Doubles in Decade

The demand on refractories has been one of greater and greater specialization. For instance, car tops for tunnel kiln cars today are made of special mixes to better meet the conditions in the firing cycle, both thermal and mechanical. Walls, bottoms, crowns and throats of tanks are made of special combinations of clays, non clays and oxides to better serve in the melting process. High temperatures are much higher today than back in 1944.

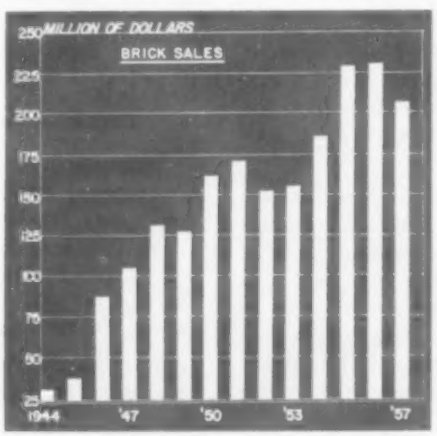
The refractories industry has met the challenge of these demands and expanded production too.

One of the outstanding developments since 1944 was the greater and greater application of plastics, castables and ramming mixes. This portion of the industry accounted for more than half the growth over 14 years. In 1944 the output of refractories approximated 6.5 million tons per year; by 1957 the total capacity rose to about 10 million tons. Two million tons was recorded in the plastic, castable, ramming group.

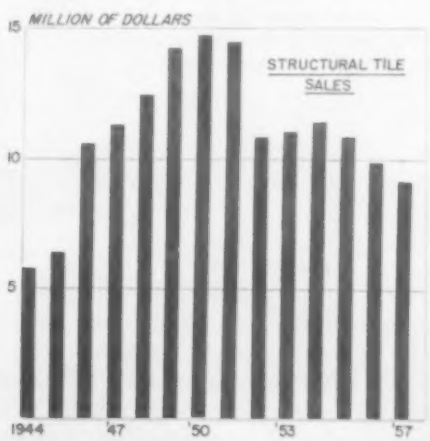
The performances of the refractory industry has always been one of satisfaction to the customer, both from the standpoint of volume as well as quality. At no time has the industry been a stumbling block to its customers in performing their duty in supplying ceramics, steel, etc., to civilian needs and to war efforts.



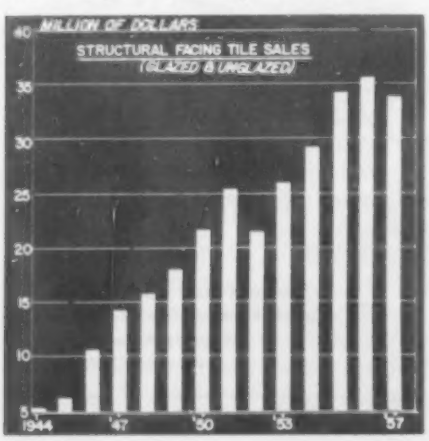
Electronics becoming more and more vital . . .



Brick and structural tile vary with construction but show upward trend . . .



Tile for facing shows steady growth . . .



Per Capita Steel Use to Increase 40%; Ceramics to Increase by 70%; Refractories to Rise 40%

This enormous growth expected to take place in next ten years due to population growth, greater consumption per person; past history shows steadily increasing production.

A fair look at the future is to judge it over a span of years, possibly five or ten years. It's unfair to account our industry outlook by the single year. Generally there are several dips in a trend on business curves over a long period which can give incorrect impressions if not properly read. Lifting one segment of the curve, showing a dip, can give a false impression when the trend of the entire curve may well be upward.

We may be in such a position now, but every indication points to the refractories industry growing, over the long pull, to a physical production of 40% to 50% or more in ten years, and a dollar and cent outlook knocking at the door of 70% more than the average.

Several very significant trends point to these increases. The consumption of steel per capita is on the increase. For instance, per capita consumption went from 800 lbs. in 1939 to 1,280 in 1944 to 1,380 in 1957. The jump from 1939 to 1957 was 580 lbs. on a per capita basis, or 70%, in 19 years.

Ceramics Grows 94%

Ceramics had an even more phenomenal growth (excluding heavy clay products) showing a consumption of 98 lbs. per person in 1939 to 155 lbs. in 1944 to 190 lbs. in 1957. This is a 94% growth in 18 years.

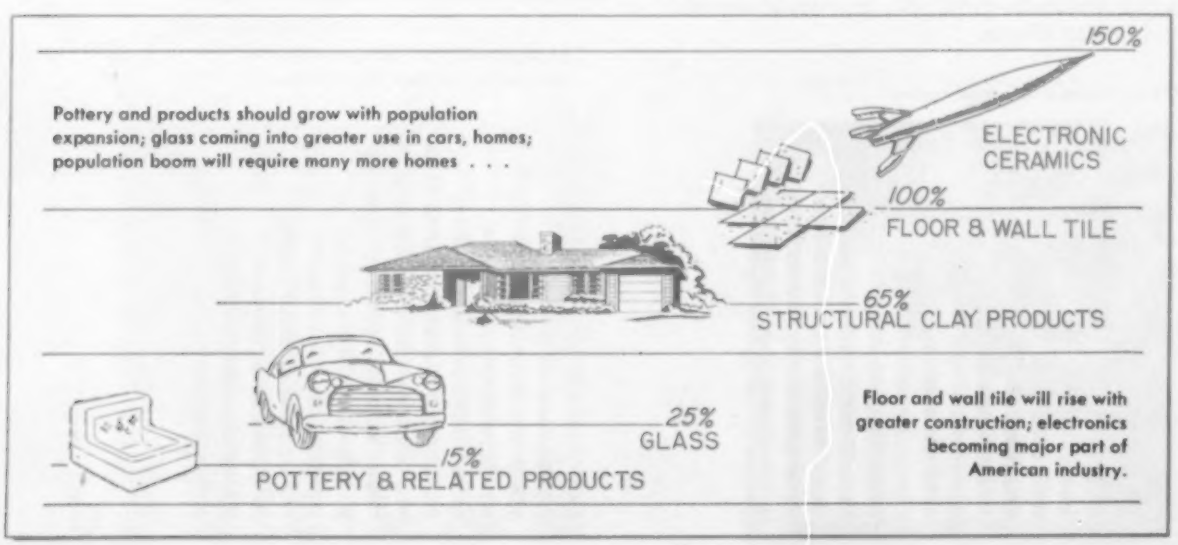
With population still growing at a very rapid rate, along with the constant increase in per capita consumption, the trend line is upward for a vast increase in the use of products made with heat in refractories furnaces.

It means a greater demand for refractories by a surprisingly large amount.

Steel consumption might be expected to increase by 40% to 1930 lbs. per person, and ceramics by 50% to 270 lbs. per person per year.

It would be safe to assume, therefore, that demand on refractories will increase from 40% to 50% over the next ten years or to a total tonnage of about 15,000,000 by 1967.

Over the long pull, therefore, the future of this industry is a good one.


150%
ELECTRONIC CERAMICS
100%
FLOOR & WALL TILE
65%
STRUCTURAL CLAY PRODUCTS
25%
GLASS
15%
POTTERY & RELATED PRODUCTS
Pottery and products should grow with population expansion; glass coming into greater use in cars, homes; population boom will require many more homes . . .
Floor and wall tile will rise with greater construction; electronics becoming major part of American industry.

•USES •SELECTION •CARE

REFRACTORIES

•GRADES •TYPES

Floor Brick for Down Drafts

What type of floor brick should we have for our down-draft kilns? The brick we now use are chipping very badly and disintegrating.

Your choice of floor brick would depend on the temperature to which you fire. However, primarily you need a denser product and one which has a fairly low coefficient of expansion. Our suggestion is to try a denser product first and then you may experiment with a high silica refractory.

Zirconium Wash Improve Refractoriness?

Does a zirconia wash improve the refractoriness?

Yes, definitely. However it is important that this zirconia wash be put on a new refractory and not one that has been used. If a refractory has gone through a fire once, the zirconium wash will not stick and will peel.

Crown Insulation?

Should we insulate the crown of our tank?

It is not customary to insulate crowns on glass tanks. There has been an attempt to do so, and I might say, successful. However the buildup of heat in a refractory under the insulation has affected the refractoriness of the crown itself. As a general rule, where you might develop hot spots or the temperature is excessive, it is not advisable to insulate since the refractory crown must dissipate the heat as well as maintain its rigidity. Where you have a low temperature and the refractories can stand the build-up in heat, then it is advisable to insulate because you will be saving a considerable amount of heat.

Checker Work on Kiln Cars

What is the best refractory for the checker work on a tunnel kiln car which must resist the direct impingement of flames?

Several refractories are used for this purpose. In the East, the high silica type fire clay is used quite successfully. In many cases, silicon carbide has been adopted for this section of the kiln car. In the Middle West, many tunnel kiln operations resort to a higher alumina refractory. Much depends on the application; if the rate of heating is rapid and cooling is rapid, then of course you must take into consideration your coefficient of expansion. If the heat is excessive, then a higher type refractory is needed. If mechanical shock must be withstood, then a dense type of refractory is needed.

Insulating of Periodics?

Should we line our periodics with insulating refractories?

This is definitely a trend in the heavy clay products industry. As much as 25% heat has been saved by this type of construction. We would not recommend that you try to do it yourself but to get expert advice from the manufacturers of insulating firebrick.

Salt Affects Kilns

How can we prevent salt affecting our kiln in making salt glazed product?

The washing of the kiln with some substance which either resists or absorbs the salt will help you. Zirconia has been used.

•USES •SELECTION •CARE

REFRACTORIES

•GRADES •TYPES

Throat in Tank

Should the throat in our tank be made of a refractory having a high K value or a low K value?

There are two schools of thought on this. Much depends on the glass protection that the throat receives. If glass builds up on the inside of the throat, then a clay type refractory is suitable. If no glass build up is experienced, then it might be better to dissipate the excessive heat to save the refractory from becoming excessively hot.

Expansion Joints

Should unclosed expansion joints be filled with mortar?

When expansion joints do not close by expansion, they should be filled with mortar. The exact temperature at which this should be done depends somewhat on the type of refractories. In the case of silica brick, siliceous fire clay brick, and high aluminum brick, the expansion joint can be mortared shut after the interior of the brick has reached 1600 deg. F. This does not apply to sprung arches built of silica refractory or construction using basic refractories. Because of different expansion characteristics, the expansion joint in basic construction should be handled according to the manufacturer's recommendations.

Flux Block for Tanks

What is the proper flux block to use in a glass tank?

This is a matter of careful study. The chemical attack of glass will affect the choice. Some blocks today will be satisfactory in all types of glasses, including borax, soda-lime, barium or lead. However, there are blocks made specifically for each type of glass which may be a better solution.

Rebuilding Lehr

We plan to rebuild our annealing lehr. What would you recommend for the roof and fan area?

The roof can be built of group 16″ insulating fire brick or group 20. The fan area should be loose insulation of a lightweight type.

High Alumina for Breastwall?

We use a high alumina material for our Breastwall construction in the glass tank. Is there other material we can use?

Normally, three types are recommended for that purpose. A silica type, the high alumina you use, and molten cast materials. Zircon has also proved quite successful.

Rotary Kiln Refractories

We are operating a rotary kiln for calcining haydite material. What refractories are recommended for the cylinder?

The very ends of the cylinder, that is, the charging and discharging ends, can be high duty abrasion resistant or possibly mullite or sillimanite; we have even seen silicon carbide used in these spots. In the cold zone and intermediate zone, we think that a high duty abrasion resistant fire clay refractory is altogether satisfactory. We do know that a fire clay castable has been used in these spots. The burning zone and discharge end can be made of the following: high duty fire clay, 70% high alumina, super plastic fire clay, and a regular fire clay castable.

Enamelling Furnace Floor

The hottest part of our enameling box furnace is the floor and it is built of an 80% alumina brick. Is this correct?

Yes, that is recommended. However, it can also be a 90% alumina brick, a mullite brick or even silicon carbide.

Refractory for Glass Contact

We smelt our own frit. What refractory is best for contact with glass?

You have a choice of five refractories: super duty fire clay, high duty fire clay, 80% aluminum, mullite or sillimanite, and zircon.

Muffle Practice

What is normal muffle practice in continuous enameling furnaces?

There are several solutions to that problem; 99% high alumina is one, mullite or sillimanite muffles are also quite good; silicon carbide is used quite widely as well.

Tunnel Kiln Ducts

The brick work at the bottom of a tunnel kiln around the duct work is generally of a lower fire brick. Is that not right?

Yes, we think the low duty fire clay brick is adequate for this spot.

Types Of Refractories

Low Duty Fire Brick

This grade of fireclay brick is made with either the dry press or the stiff mud process. Due to the lower requirements of this grade of brick the selection and sizing of the clays used in its manufacture are not as critical as the higher grades. The brick must have a pyrometric cone equivalent of not less than No. 19. In actual practice most material of this grade exceeds the P.C.E. by several numbers. This class of brick is not generally recommended for use under severe service conditions. It is often used for back up of higher classes of fire brick and in fireplaces and household incinerators.

Intermediate Duty Fire Brick

Available in both dry press and stiff mud manufacture, Intermediate Duty fire brick has higher physical qualities than low duty types. A.S.T.M. requirements call for a pyrometric cone equivalent of No. 29 or a deformation of less than 3% in the 2460 F. load test. These higher qualities result from selection of raw materials, greater pressures used in the forming of the brick and a longer and more intense heat treatment.

High Duty Fire Brick

Produced by either the dry press or stiff mud processes, high duty fire brick are suited to all but the most trying conditions under which fireclay brick can be used. High duty fire brick under A.S.T.M. specifications must have a pyrometric cone equivalent of at least No. 21-32 or a deformation of 1.5% or less in the 2460 F. load test.

In order to produce brick of this quality the manufacturer must exercise care of the highest order in the selection of raw materials and must control the processes so that the ultimate properties of the clay will be developed.

Superior Duty Fire Brick

This grade of fire brick is suitable for the most drastic conditions and is produced by the dry press method. With a pyrometric cone equivalent of No. 33 this brick also must have a shrinkage of less than 1% on the 2910 F. reheat test and also must show superior resistance to spalling.

Refractory Concretes

These special refractories are made with a wide range of properties and are suited for many diverse uses. Supplied either as a cement to which grog for aggregate and water is added, or as a mix requiring water only this material can be cast in the most complicated forms as well as the usual structural elements of kilns and furnaces. Designed to mature at designated furnace temperatures, refractory concretes develop adequate cold strengths. Light weight aggregates can be used with these cements and some are supplied with them. The light weight concretes retain the desirable characteristics of pouring material while increasing the thermal resistance of the completed structure.

Insulating Fire Brick

This light weight refractory has several important advantages that make its use profitable in many applications. Formed by a process that leaves many unconnected air cells in the body, this product is available in several grades. Insulating brick are rated for the working temperature of the hot face.

Compared to the normal fireclay refractory, insulating brick weigh perhaps 1/6 as much and reduce the conduction of heat by some 80%. This class of material is suitable for applications where there is not direct impingement of flame on the refractory and where there is no severe thermal shock.

They are made for use where the hot face ranges from below 2,000 F. to 2,900 F. As the weight increases and the thermal resistance decreases with increased rating it is usually advisable to use as low a fire duty as is compatible with the conditions of service.

The conservation of heat is a major advantage dictating the use of insulating brick, however also important in periodic conditions is the time saved in heating the kiln to working temperatures. This results in a greater utilization of facilities and reductions in all indirect costs. In continuous processes like tunnel kilns the use of insulating brick become doubly important because of the comparative large surface of the kiln in relation to its volume.

Continued on page 73

TRI Meet Studies . . .

Personnel Need Intensifies With Industry's Growth

Ohio State meeting reviews industry and its problems; discusses ways to attract personnel to industry, especially since continuing industry growth will require more and better trained men.

Thirty Ceramic Engineering students were guests of The Refractories Institute at a two day conference on November 21 and 22 in Columbus, Ohio. Sponsored jointly by The Refractories Institute and The Ohio State University, the Conference was planned by Avery Newton, executive secretary of TRI and Prof. John L. Carruthers of the University to discuss problems of the refractories industry and to acquaint members of the student body with the industry.

In addition to a general review of the industry, considerable time was spent in discussing the employment of young engineers under current conditions of acute shortage of all technically trained people.

Speakers represented a wide cross section of the industry, research organizations and members of the Ohio State University faculty. Chairman of the program was Prof. Carruthers also appeared as a featured speaker.

Carruthers traced the changes in the course of study of today's engineering student and explained that the curriculum was formed as a result of influences from: accrediting agencies, policies of the University, personnel and facilities available inside and outside of the ceramic department and industry reports.

The increasing load placed on todays engineering student has resulted in the establishment of a five year program at Ohio State. For the most part the extended time is required to allow engineering students to receive a considerable amount of non-engineering courses. Carruthers analyzed the course content of todays five year Ceramic Engineering course as follows:

Math and Basic Science	28%
Engineering and Science	17%
Ceramic Engineering	26%
Non-technical	18%
Miscellaneous	7%

He said that such a basic and broad course of study prepared men who were able to enter into many fields of work and that industries other than the purely ceramic were finding

President Brinckerhoff with Past President Lowe

E. A. Williams

Dr. J. Otis Everhart

C. A. Smith

ceramic engineers to be profitable employees.

In a broad plan of explanation the industry was pictured for the interested guests and the 55 industry representatives who were registered at the conference. Various speakers covered the history, development and present status of the industry. These phases were discussed both in relation to the balance of the economy and within the industry itself. Other papers were offered on progress attained in certain research programs of the industry and plans under way for the enlargement of this program.

Refractories' Place

Following a warm welcome by Dr. Gordon B. Carson, dean of the College of Engineering and opening remarks by J. E. Brinckerhoff, TRI president, Wayne X. Fay set the tone of the Conference in a speech on "The Place of the Refractories Industry in the Economy of the Nation". Fay brought out the basic importance of the industry to practically all manufacturing processes. He reported that in 1956, 25,000 people engaged in refractory production made $400 million in products in 253 active plants. Fay, who is quality control manager of General Refractories Co., also had the film prepared by his company which indicates the importance of the industry and the wide area in which it operates.

Hiring methods that can be used to secure engineers was part of a paper by W. L. Fabianic, Director of research with the Refractories Division of the H. K. Porter Co. Critical information had been secured by this speaker from a questionaire that he had circulated and from other sources. In 1956 there were 500,000 jobs open and only 350,000 people were graduated from the Colloges and Universities to fill these jobs.

Graduate Shortage

The shortage of graduates in the different engineering classifications was more critical than in other field however as the 26,300 engineering school graduates could choose from the estimated 45,000 positions open to them. Fabianic had determined that only 132 ceramic engineers were graduated in 1957; only 167 are to be graduated in 1958. Actually only .75% of all engineering students are following a ceramic engineering curriculum.

The speaker stated that this real shortage of graduates has resulted in intensive efforts by many companies who feel that they must secure a fair proportion of the men available. It was noted that 28% of available ceramic graduates had been employed by the refractories industry. Fabianic said that this was a fair share of an inadequate supply.

Last spring the starting salaries averaged $468 with a range of $450 to $610 for newly hired engineers according to Fabianic. Also covered by this speaker was specific methods of hiring and job conditions that affect the hiring of scarce personnel.

At dinner are Renshaw, Norton, Valensi and Stone

Avery Newton, Wayne Fay, Brinckerhoff and Carruthers

Ceramic engineering problems faced by the industry now and in the future were the subject of a paper by T. E. Ralston, Coordinator of Engineering and Operations of the Harbison-Walker Refractories Co. Ralston mentioned specific problems met by refractory products in use and said that use requirements were constantly being raised by the users of refractories. As an example he said that the oxygen converter now being promoted in the steel industry depended completely on the development of refractories having new qualities.

Plant Layout Trends

C. A. Smith, Vice President of Mexico Refractories Co., in a paper "Trends in Modern Refractory Plant Layouts" made a rather complete report on equipment used in practically all processes now used in the industry. Transportation, both in plant and outside the plant, was covered as well as current types of plant building construction and planning.

Activities for the first day of the conference also included a tour of the Ceramic Engineering Department and the Engineering Experiment Station of the University.

Concluding in the evening, members and student guests attended a social hour and banquet at the Deshler Hilton Hotel in Columbus featured speaker was Dr. Samuel Renshaw of the Psychology Department. Dr. Renshaw is widely known as a vision expert and his entertaining remarks were on his specialty.

Lab Equipment

Six speakers were presented on the last day of the conference. C. L. Norton, Executive Assistant for the Refractories Division of Babcock and Wilcox explained the techniques for refractory research. Using slides taken at his company's laboratories in Augusta, Ga. he illustrated the great variety of equipment required by the industrial laboratory. Since the purposes of the industrial laboratory are different from those of the educational, a difference in equipment can be observed.

Continued on page 68

HIRAM SWANK'S SONS

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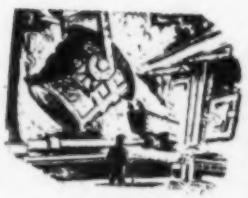
Manufacturer Pouring
Refractories



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WELLSVILLE MANUFACTURERS MISSOURI

F. M. Maupin, W. S. Bradley and T. E. Ralston

W. L. Fabianic talks with H. D. Prior

TRI MEET Continued

The essentials of a research program were listed as: competent personnel, facilities for complete utilization of personnel and a plan which guarantees the use of research results in production.

Dr. J. Otis Everhart of the University's Ceramic Engineering Dept., characterized in a paper on the future of refractory research the problem of direction as spokes in a wheel which go in many directions but start from the basic ceramic engineering material. E. A. Williams had prepared a general review of the different types of refractories, their uses and problems encountered in their production. Williams is in charge of operations of The North American Refractories Co.

Balling

The nearly complete conclusion of research into the problem of fireclay balling was presented by F. H. McRitchie. This work, done under a Refractories Fellowship at the Mellon Institute, has determined several methods of reducing the balling problem. According to McRitchie the most promising calls for the addition of Resin Amine Diacetate at a 2% of fire clay rate. For a body containing 50% raw clay the cost of the additive would be 72 cents per ton of ware.

Pressure Cracking

S. M. Phelps, who is executive director of the Refractories Fellowship at Mellon, spoke of the research now underway on Pressure Cracking of Dry Press Brick. As a pre-requisite of this project a press has been designed and built as there were none available commercially with the degree of control and instrumentation required by the problem. By using an oscilloscope in connection with electrical metering devices the managers of the project feel that they have equipment at hand that will allow them to secure worthwhile results.

A look at the refractories industry in the years ahead was the closing feature of the conference. W. S. Lowe, president of the A. P. Green Fire Brick Co. stated that since the industry was basic to all others it was also a bottleneck industry and that the American way of life and the American standard of living was in large measure dependent on how the problems faced by the refractories industry were solved. If people now entering the industry could make good solutions then the industry would grow as the economy of the nation grew. The future of the industry is in large measure in the hands of today's student.

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Palletized shipments for even unusual shapes, such as tuyere tubes, shown in this picture.

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Plastic Fire Brick

This refractory material consists of a high proportion of small sized fireclay brick grog and a plastic bonding clay. The bonding clay is selected to give workability and low shrinkage. The manufacturer compounds this product with predetermined properties and packs it in moisture proof containers.

When received, the plastic fire brick have been cut into convenient sizes by the producer and need only be removed from the container and put into place by the user. It is installed by beating or ramming the slugs into place to secure a monolithic structure. A form can be used if desired; however the green strength of the mass is enough so that it can be formed without support.

When subjected to heat only the portions that reach high temperatures are heat set and, while this may be a disadvantage, often the lack of rigidity can be a real advantage. Used in the metal trades for ladle linings and other small areas it is predicted that the ceramic trades will make greater use of this handy material for small repairs and maintenance jobs.

The completed patch or repair must be subjected to heat treatment soon after completion as the unfired material is subject to air slacking. Plastic fire brick are compounded to several distinct grades corresponding to the different grades of fire brick and conditions of use determine the grade which should be selected.

Refractory Mortars

The use of raw fire clay for the setting of low duty firebrick has become so ingrained that the advantages of more refined mortars have been often overlooked. Many times the raw fire clay mud is so refractory that it fails to bond and actually acts only as a cushion between the irregular surfaces of the firebrick. This results in weak, leaky walls and early failure.

In general there are two types of refractory mortar, air-setting and heat setting. The air-setting mortars develop high strength bonds in the unfired state and weld the entire mass into one unit making it more resistant to strains and stresses. These products are formulated of a calcined clay and a plastic fireclay to which is added sodium silicate. The ingredients are selected to form a ceramic bond at the anticipated working temperature and this supplementing the cold bond sometimes has more strength than the brick. Air-setting mortars are shipped in cans and are ready for use as received.

Heat setting mortars consist of sized firebrick grog and a bonding clay selected to mature at the designed temperature range. They develop good bonds when properly fired with the result that the structure has more resistance to destructive forces. Hot setting mortars are shipped in 100 lb. bags and require the addition of tempering water before use.

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Refractory grades of "PYRAX" pyrophyllite can be used to good advantage in refractory brick, refractory cements, unfired refractories, backwalls, radiants, tile setters, saggers, and other special refractories.

"PYRAX" pyrophyllite has a P.C.E. of cone 26 to 27 and when mixed with small amounts of kyanite its P.C.E. can be increased to cone 28 or 29.

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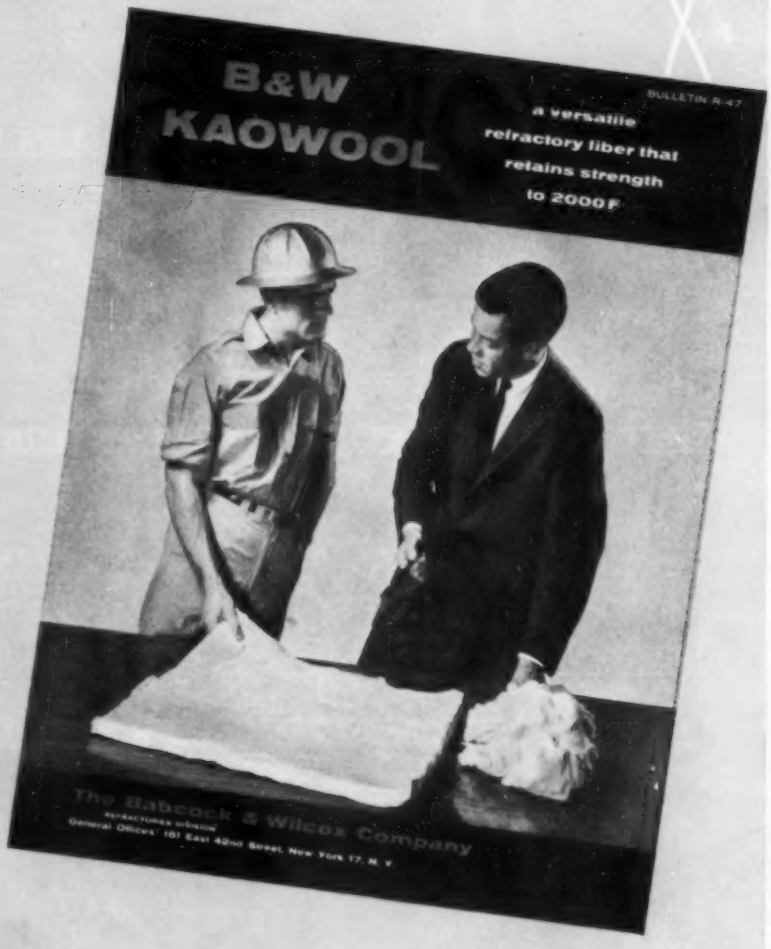
New Bulletin on

B&W KAOWOOL

Gives data on many uses of 2000 F refractory ceramic fiber

B&W Kaowool, the 2000 F ceramic fiber, is now giving long economical service in ceramic applications. For example, B&W Kaowool is used for expansion joints in car tops, as well as for roof and wall sections of ceramic kilns. Write for new bulletin giving helpful data on B&W Kaowool, the easy-to-apply ceramic fiber that withstands temperatures to 2000 F.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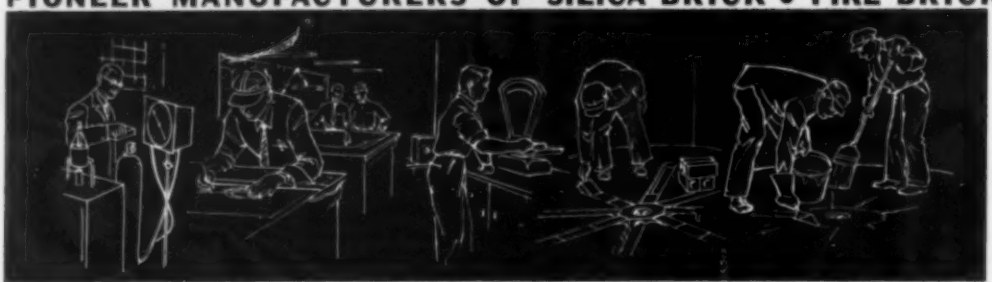

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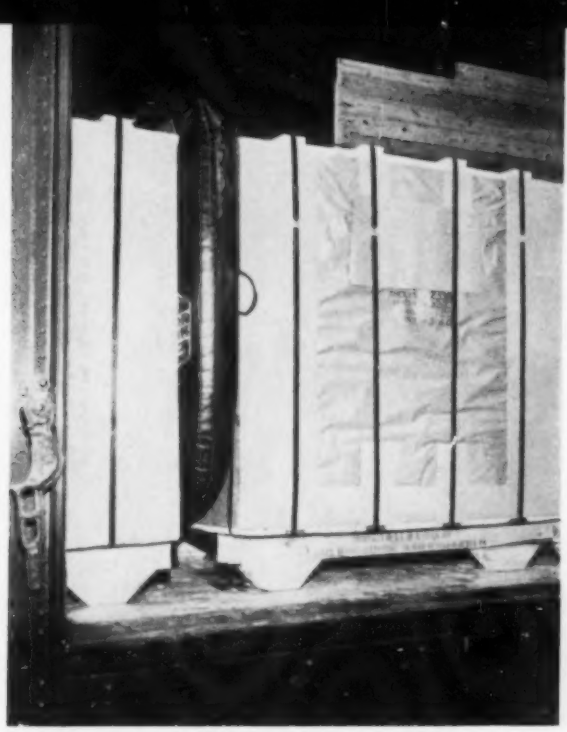
Developed for Army use, new dunnage cushions can be set in place by one man; units are then inflated to size; one or several units can be used to fit void.



Inflatable cushions absorb shock and increase in size to make up for load shrinkage. Deflated cushions are 6 x 15 x 24"; inflated are 4 x 4' or 4 x 5'.

"Inflatable Dunnage" Cuts Shipping Losses

Test shipments by Robinson Clay also show no need for bracing, lumber in pipe shipping; quick unloading, dunnage easy to handle.

A more economical and reliable way of shipping brick, refractory and other clay materials has been developed by United States Rubber Co. and successfullly tested the past year. Pneumatic dunnage cushions have substantially eliminated cargo damage in rail shipments, speeded up the loading and unloading of box cars substantially and displaced wastful bracing and shoring lumber almost completely.

The new cushions, developed at the request of the Army Quartermaster Corps and now available for civilian applications, are called Shor-Kwik inflatable dunnage.

Trial Shipments Made

Trial shipments of clay products have been carried on for some time by the Baltimore & Ohio Railroad, one of the nation's leading freight lines, with outstanding results. As an example, a 325-piece, 40,000-pound shipment of flue lining was sent by Robinson Clay Products, Dover, O., to New York City with a loss of only 16 small pieces. Similar shipments without use of dunnage cushions have resulted in losses nearly 86 per cent higher in cost.

For this shipment, flue lining was laid in straight rows with only cardboard separators between each row. A 19¼ inch void at the center of the car was filled with four 4 x 5-foot cushions, inflated to 3½ pounds-per-square-inch.

Low Loss Rate

In another test shipment, the Evans Pipe Co., Uhrichsville, O., sent 1,400 pieces of sewer pipe and 325 miscellaneous fittings to Acme Clay Products, Chicago, with the loss of only two pieces of sewer pipe. Pipe was laid in nine rows at each end of the car with a 10-inch void at each end and a 36-inch void in the center doorway. Two dunnage cushions were used at each end and six in the center, inflated to four p.s.i. Lumber was used only for floor runners to start the pipe layers and lath gates between each section of pipe and at the ends.

Similar success have been reported all during the extensive testing period.

Quick Installation

The rubber-nylon bags are installed in a fraction of time normally needed to brace and shore rail shipments. One-man installation is not uncommon, permitting a more productive use of shipping crews. There are three simple steps to readying a car for shipment when using inflatable dunnage:

First, the center space, or void, of the loaded car is measured to determine how many inflatable units are needed.

Next, the required number of Shor-Kwiks, inflated to semi-flexibility, are set into a snug-fitting position in the void.

Withstands 10 MPH Impacts

Last, the cushions are fully inflated to absorb impact, prevent shifting and protect cargo from damage. In test shipments, impacts up to 10 m.p.h. have been successfully withstood.

Made of weather proof nylon with a neoprene coating on each side, the dunnage cushions are equipped with a butyl-compound bladder, much like a tire tube, and a large-volume diaphragm valve. Inflated cushions measure 4 x 4 of 4 x 5-feet and can be expanded from one to 10 p.s.i. They have a bearing surface of 40 x 40 or 40 x 50-inches and weigh between 28 and 33 pounds. Pressure can be maintained for long periods if necessary.

When deflated, damage cushions fold into compact 6 x 15 x 24-inch cubes for easy storage or return if not used for trans-shipment.

The cushions, a product of U. S. Rubber's footwear and general products division, are made at Providence, R. I.

STAHLTON

Can Open New $85 Million Market To Clay

Factory made units for floor construction, using clay block and beams with pre-stressing, have been great success in Europe in short time; can open flooring market in US to clay products

By
Arthur P. Klages

The Stahlton system of floor and deck construction is establishing for itself such a record of success in many countries that we might well review this product and its remarkable progress, and consider the possibility and economics of its manufacture and marketing here. This is a product which provides access to a market potential relatively new to and as yet almost untouched by the American clay products manufacturer — a market estimated to be worth over $85 millions (1956-7) and thus one which just cannot be ignored any longer.

In the past an appraisal of the economies of manufacture of any such product has been unreliable due mainly to the lack of exact information and facts. Any evaluation can be no better than the validity of the information on which it is based. But fortunately a Stahlton appraisal can now be made without guesswork, as quite definite and reliable information about costs and markets has been firmly established over the 11 years of manufacturing experience in various plants under many different conditions, plants which in 1956-7 produced and sold over 10 million sq. yds. of floor.

The writer has, over a 3 year period concerned with floor systems, had the benefit of full co-operation from the Swiss pioneers and developers of Stahlton, Bureau BBR of Zurich, Switzerland.

Progress Seen

He has personally visited and observed operations and techniques in Stahlton manufacturing plants in Switzerland, Italy, Belgium, Denmark and England, all in the course of a 6 month survey in Europe of all types of floor systems. Some of the plants first visited in 1954 were revisited in 1956 so that the progress was readily discernible.

From this study of comparative floor systems, the writer has singled out the Stahlton system as being the most outstanding and progressive of its kind, and therefore attempts here to give a practical review of some of the basic considerations which will figure in any appraisal of Stahlton with respect to the U. S. market.

Any such evaluation will necessarily concern itself first with the question of marketability and profitability, rather than with the techniques of production. The latter are in any case already highly developed and well established (and proven by experience) so production even for such a highly industrialized market as the U. S. presents no engineering problem. This article will therefore outline some of the features of the Stahlton product design, discuss the market potential in the U. S., then describe the techniques of production and conclude with some figures on costs and profitability.

System Is Unique

The Stahlton system of floor construction is unique for a number of reasons. Firstly it is the only factory-made floor of its kind which has proved to be commercially successful, not just in one particular market with perhaps certain given conditions or peculiarities, but in no less than 16 different countries where it is now being manufactured in 23 different and mostly independent factories, all established within the last 10 years.

This remarkable record of achievement is itself a good reason to take a second look at it. No other single type of factory-made floor has shown such rapid growth and earned such ready acceptance on the market.

Secondly, it is the only commercially produced factory-made floor in which clay tile is used as the basic material, and prestressing used as the method of reinforcing. Readers will likely know of other clay tile floor

systems, and of other prestressed concrete systems, but there is no other prestressed clay tile system in commercial production in the U. S. today.

Stahlton History

That such a floor system should originate in Switzerland is not surprising. The Swiss are and always have been short of certain basic materials, hence their continuous search and efforts to apply to the best advantage those few materials which are available to them as a natural resource.

The marriage of prestressing as a method and clay tile as a material was a most natural consequence.

Much of the basic research work was done by EMPA in Zurich. Shortly after the war, Mr. Mirko Ros (an established consulting engineer specializing in prestressed concrete) with two partners Antonio Brandistini and Max Birkenmeier, calling themselves Bureau BBR, commenced production on a commercial basis for the first time of what is now the Stahlton floor. This first plant was built at Frick in 1946.

Improvements Made

Since that beginning there has, of course, been considerable development and improvement in production techniques, mostly initiated by BBR, but there has been no change in the system itself and virtually no change in the dimensions and proportions of the component blocks, which is certainly an indication of good product design in the first instance.

The end of the war also saw the beginning of the building boom in Switzerland, which still maintains today. So the Stahlton floor had a relatively easy entry into the market.

Even so, comparatively, the building boom in Switzerland was then no more favorable to the acceptance of a new product than the American building industry is today. Factory-made floor manufacture was already well established as an industry and a high degree of competition existed, very much in contrast to the position in the U. S. today.

The most worthwhile appraisal of Stahlton will be made by looking at the performance record **after** its successful establishment in Switzerland, by looking at its progress and acceptability in other markets.

In this respect it is proving to be a great success in a number of countries, each with its own particular price structure and conditions.

Plants are producing in Switzerland (2), Italy (3), England (3), France (1), Belgium (1), Denmark (1), Sweden (2), Austria (1), Spain (1), Portugal (1), Germany (3 under construction), South Africa (1). In addition plants are under construction and manufacturers have been licensed in Australia, Holland, Mexico, Peru, Uruguay, Hawaii, Japan, and the Philippines.

In England for instance there has been full employment but no boom in the building industry for the past 3 years, certain of the existing prefabricated floor manufacturers had been having very lean times, and there has been more than one business mortality in that industry. Yet Costain Concrete Co. Ltd. has found business so good with Stahlton manufacture in its first two plants, that last year (1956)

Continued on next page

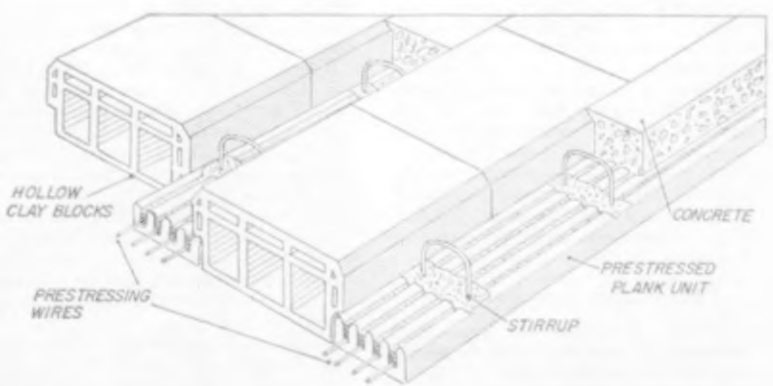
What Is Stahlton?

Part One of a Series

The Stahlton process is a system of factory-made units for floor construction, using clay blocks and planks as the basic unit with pre-stressing used for reinforcing. After the units are assembled on the site, concrete is poured to form the surface.

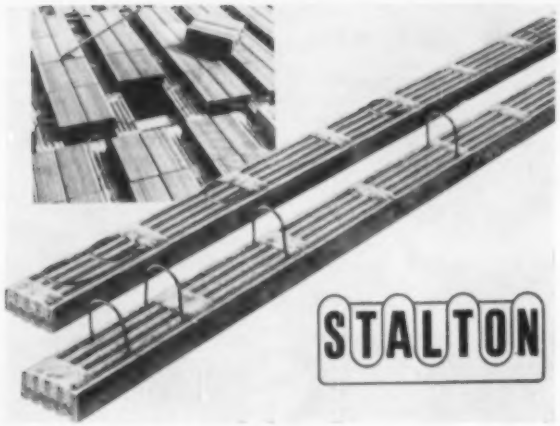
This system has achieved wide acceptance in Europe, with a phenomenal growth and success of the young industry in just the past ten years.

The author, who knows many of the people and plants using this process, discusses in this initial article what the Stahlton process is, how it could be used in this country, the history of success of the product, the reason for using the block and plank combination along with pre-stressing and other aspects. Later articles will fully explore production methods, the U. S. market for such a process, construction methods and other facets of use of the Stahlton process.



About the Author:

Arthur P. Klages, a professional engineer, is an AMIE from Australia; with a Bachelor of Economics degree. He has seen and visited many of the Stahlton plants in Europe; he also has worked with many of the people. The editors would like to thank Mr. Antonio Brandestini for his cooperation in supplying us with photos and other material that will be used in this series.



STAHLTON Continued

it completed and brought into production an entirely new and very modernized plant.

Even so, Costains told this writer that development was limited only by the fact that clay tile was in short and irregular supply.

Wide Acceptance

The Italian market is characterized by the wide acceptance and use of clay tile as a load bearing structural building unit, by the high quality of its tile, and the extensive development of the prefab floor industry. G. Marioni of Biarmato S.A. in Milan, is one of the pioneers of prestressed clay tile floor systems in that country and has co-operated closely with BBR toward the final development of what is now the Stahlton floor.

When the writer first visited Marioni in 1954 he had recently completed his quite new and highly mechanized factory at Milan, designed and used exclusively for Stahlton manufacture (sold there as "Stalp" through Vela S.A.) and he was **already** working 2 shifts to operate his plant to capacity producing over 2300 sq. meters of floor per day for 6 days per week.

And still he could not satisfy the demand. Since then an additional factory has been put into production in that market.

These stories can be repeated many times. The writer still has not yet met any Stahlton manufacturer who admits he has reached the full potential for sales in his own local market.

Mostly the complaints by producers have been that the supply of clay tile is not dependable either in quantity or quality.

High Labor Cost Markets

Certain criticism is sometimes based on the idea that what is profitable in the market with low labor prices and high material costs will not necessarily be profitable in markets having a structure of high labor prices and relatively low material costs, such as the U. S.

The specific relationship between labor prices and material costs may indeed be true, but that this relationship affects the final economics of a manufactured product such as Stahlton is not necessarily correct.

True, **wages** in the U. S. are relatively high, but because labor is so much more productive here by virtue of more effort and more mechanization, the final cost of the **work done** is not greater here than in most other markets.

Precisely because Stahlton is factory made by **mass production methods** does it appear to be especially suitable or appropriate to a highly industrialized economy such as the U. S.

If we want to understand why Stahlton has been so successful, then we must first understand just what the system is, how it compares with and differs from other systems, and **what and where are its comparative advantages.**

Block System

We could ask, why use a block system, and why terra-cotta blocks? What advantages have these over say precast concrete beams, or beams made of precast concrete blocks?

The use of clay tile as a basic material means fabrication of larger constructions or components from relatively smaller parts or blocks, i.e., it means a block system. Stahlton therefore is such a block system.

There are, of course, numerous variations of block systems, quite a few of which are now on the market, some good and some not so good. Stahlton, basically a beam plus block system, is unique among these because it not only uses hollow tile as the filler blocks between the beams or "planks" which contain the reinforcement, but it also uses clay tile as the prime components for the plank manufacture (i.e. containing the reinforcement).

Stahlton is the ONLY system that manufactures terra cotta blocks into a continuous load bearing member or component 'plank' by prestressing and mass production methods.

(Editor's Note: When this story refers to terra cotta used in Europe, it is comparable to hollow tile or heavily cored solid clay units as we know them.)

The first advantage in using blocks is in low cost, availability, uniformity, control of quality, standardization (interchangeability), reduced losses, and complete versatility in application (basically these are the same reasons why ordinary bricks are today still used for wall construction, almost unchanged in size for over 2000 years.)

But there is a more important reason. It is a recognized principle that a block system provides a way for disposing materials in a load bearing composite section in the most economic way, i.e. according to the particular properties and relative advantages (especially of cost) of each material, and the ability of those particular properties to satisfy load conditions.

Generally a strong material will cost more than the relatively weak material. The block system makes possible the application of the high strength (more expensive) material at the high stress points, the low strength at the low stress points by combining into a composite section blocks of different shapes and properties.

Stahlton also differentiates the materials according to their best properties, of which cost is not the least, and strategically disposes them into a composite section best suited to support the load.

There is another important advantage in using blocks. That is to adopt a product design which gives the component blocks the functional shapes to facilitate both production and end use. The Stahlton plank tile is specially shaped so that it acts as a form for concreting during the manufacturing process, allows easy handling and stacking, etc. This is referred to again below under the description of manufacture.

Joint Was Problem

The development of block systems for load bearing work has until now been balked by the problem of suitably cementing together or otherwise joining the end faces of the hollow blocks, when those end faces of adjoining blocks sometimes consist of intricate patterns of web and shell facings. (It is generally believed that the best use of the blocks can be made if they are hollow). A satisfactory joint between the ends of the blocks is essential if a compressive load has to be transmitted through the system. And because this joint is so repetitive, the method of making it has to be a simple and low cost one.

The Stahlton system is the only one to the writer's knowledge (after 3 years of searching) that has found, and uses a method which answers this problem and which is practically and commercially successful.

Why Use Terra Cotta?

With terra cotta there is no choice but to use blocks, because the material is available only in blocks (or of

Continued on page 93

Part III of a Series

Part I appeared in Nov., page 52;
Part II, Dec., page 54.

COLOR

How You Can Use It - - - And What the Problems Are

A report on the several ways to add color to your product; the manufacturing processes and problems; what methods are best for your operation.

by
Thomas D. Carnahan
B. F. Drakenfeld & Co.
Washington, Pa.

So much for opinions. Let us now turn to some of the factors affecting final colors of the fired engobes. We have found that there are three main sources of color variations in an engobe. These are application weight variation, clay variation, and firing variation.

In general, a heavy application will give a higher degree of vitrification with resulting darker color than a light application. Ceramic pigments depend on a reaction with or solution in the ceramic body to develop their full color potential. In our engobes where the engobe body is not completely vitrified, the color is not completely developed. Anything that will promote more complete vitrification will cause darker coloring and this will include heavy application. One plant that I know of used this to their own benefit by mechanically applying varying weights of engobe to each brick and producing a very good looking mottle.

Clay Variations

Clay variations, especially in the lower temperature series, will cause color variations in the engobe. This variation appears to be a function of the iron content of the clay and the redder shales seem to bring out darker colors in the engobe. I recall one plant in particular that makes four colors of brick by blending various clays. One pink engobe of ours was tested on all four kinds of brick and gave four different shades of pink ranging from a clear bright pink on the tan brick to a dirty purple pink on the red brick. Although we point this out as a possible source of color difference, the normal clay variation will probably be of little significance in the final color shading.

The firing variations will probably account for the greatest amount of color variation, and it will be due largely to differences in degree of vitrification of the engobe. Also, as in glaze coloring, the kiln atmosphere must be oxidizing or many of the colors will be destroyed.

Before ending my talk, I would like to mention a couple of ideas which some of you might think about if you are considering trying an engobe type of decoration. As stated before, we do not feel that the engobes should be used to make a perfect surface coating free of color variations and surface blemishes. If this idea is carried through the entire manufacturing process, then surely a saleable low cost colored brick should result.

Need Cheap Method

In line with our other suggestions for keeping costs down, we think that some intelligent engineering could provide a cheap method for applying the engobe to the brick. In all of our experiments we used a conventional spray technique. However, from two different sources we have had proposed the idea of applying the engobe slip by means of a roller attachment on the column much the same as a paint roller is used in home decorating. Spray machines can be quite expensive and we think that this roller method of application would bear some investigation.

Another idea which we think is worthwhile involves applying the engobe as a dry powder. Our tests indicate that the engobe ingredients really need no grinding to make a satisfactory coating material. Why not then eliminate the processes of putting the mix into a water suspension and then removing the water after application? In just a couple of experiments, we have tried dusting dry engobe mixes onto a green brick and we think the results were good enough to warrant further investigation of this process.

In conjunction with the idea of applying the engobe as a dry powder, there is one application method which intrigues us, and that is to apply the engobe as part of a sand coating. A number of plants now use sand coloring in their operation and a properly formulated engobe could be used to give a larger variety of colors. We think it is possible to use as little as 5 pounds of engobe with each 100 pounds of sand which would certainly afford a rock bottom cost. Probably the most economical sanding method would be either to sand blast the sand color mix into the brick or to roll it into one surface. A conventional sand mold operation may find the coloring cost too high, unless sand waste could be reduced.

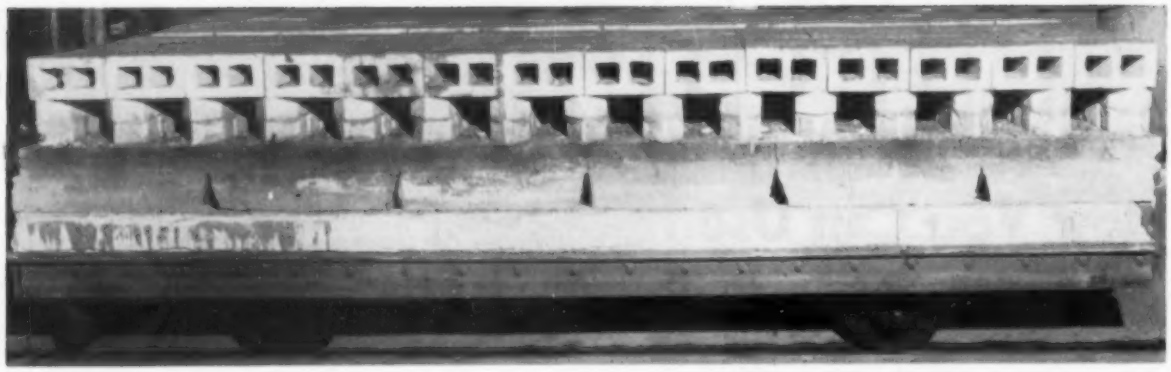
Of course, actual brick coloring in a sanding operation depends on transfer of at least part of the color from the sand particles to the brick surface. In other words, the permanent color is not on the sand but on the brick and the sand may be thought of as a carrier for the color. This transfer of color is probably most effective in a sand blasting operation and will give the strongest colors and best coverage of any of the sanding processes.

One problem which a number of plants will encounter when using any surface coloring process is that of setting the brick on the kiln car. Here is another place where an engobe coating will show an advantage over a glaze coating. Any brick or tile which has a fusible coating, such as a glaze, must be set so that none of the coated faces are touching anything during firing. This restricts the setting to a flat set unless you just pile the brick on the very top of the setting.

There are a number of plants which cannot fire in a flat setting and could not put in a glazing process if they wanted to. However, if the engobe is properly formulated, the refractory nature of an engobe coating will make it possible to face set engobed brick without fear of sticking the surfaces together. Plants which sand their brick to prevent sticking could continue their sanding on the engobe surface to provide added assurance against sticking.

I hope that in discussing some of the various coloring methods for brick and tile I have at least sparked in some of you a small amount of additional interest in coloring. I think that there is no doubt that in the coming years we will see more color in the heavy clay building materials than ever before, and it is now that we should be thinking about new ways of coloring an old product.

Figure 1



How To Cut Car Top Replacement Costs

Tips on the type of car tops to use, ways that they can help cut fuel costs, improve firing.

E. H. Jeffries, Jr.
North State Pyrophyllite Co.

A few years ago many of the major producers of brick began to expand their markets and operations, and at the same time to look for ways to cut costs and produce more efficiently. This led to tunnel kilns being built in large numbers, as brick can be produced by firing in tunnel kilns more economically and more uniformly, as well as many times faster.

One of the problems that was at first encountered was the fact that few people realized that the biggest single item of maintenance cost in tunnel kilns was the car top refractories. This continued to be true until development of the pyrophyllite car top. The pyrophyllite car top has reduced refractory maintenance cost to a point where it is about equal to other normal items in the maintenance picture.

Weight Important

The first consideration in selecting a refractory for tunnel kiln cars is the weight of refractory to go through the kiln each time a car is cycled. Decreasing the mass and increasing open core volume constitutes the biggest single savings, as it can be translated directly into fuel savings.

Solid car top units are heavy, expensive, and increase labor cost when installed, as well as being heated on each trip through the kiln. Cored car tops are lighter, less expensive, easier to handle, and simple to install. In general, the thinner the wall and the larger the core, the less maintenance is required.

One problem in firing many brick clays is gas circulation in the lower part of the setting. With a cored car top, bottlenecking of heat is eliminated, and maximum circulation of hot gases is realized. Elimination of slumping, and elimination of premature or undesirable side flashing is thus obtained by use of an open cored, thin walled, car top unit.

Figures 1 and 2 show two different approaches to elimination of this problem. Figure 1 can be varied by use of a single course of fire brick under the car top unit to fit varied car heights, and the car top itself is available in a number of heights.

In Figure 2, the shorter units are used on top because of the tendency of fork lift operators to mistreat the outside units, and the short length is only half the cost to replace that a long one would be. Single course decks are used extensively in place of the double course in Figure 2, and are successful in most installations.

The two arrangements shown are for individual problems, and any firing problem arising from the passage of gas through the setting can be solved by the use of various arrangements of cored car top units.

Heat Shock

The two major technical problems in tunnel kiln refractories are breakage from heat shock, and load bearing strength at high temperatures. These two properties are the primary advantages of the mineral pyrophyllite in refractory use. Load bearing strength is evaluated by the A.S.T.M. "hot load test," and pyrophyllite shows really remarkable results.

The hot load test is a method of applying a constant load to a sample

Figure 2

Car Tops CONTINUED

being fired at a predetermined firing schedule. It is measured in percent deformation of the sample. Pyrophyllite car tops show from 0.7% to 0.9% deformation in the 2460 degree F. test.

The heat shock test as run by the North State Pyrophyllite Co. lab is a test developed at the North Carolina State College, and consists of firing 1"x1"x6" samples in a kiln heated to 2150 degrees F. for a period of 15 minutes, and then placing the hot sample in water at room temperature for 15 minutes. This procedure is repeated until the sample fails, and is measured in number of cycles to failure.

To 30 Cycles

Until about a year ago, four and five cycles was the maximum. This was better than results from other types of refractories, but still not up to the standards desired by North State. Now, PACO car tops are going 30 cycles in this severe test, and show probability of even better results to come.

Easy To Handle

The thin walled, large cored car top is the answer to most tunnel kiln refractory problems. It is easy to handle and install, simple to replace, stronger, will stand more heat shock, and has the most strength obtainable under load at high temperatures. It is inexpensive, and one unit can be replaced when necessary instead of a whole section or group of smaller units. Cored car tops give better burned brick from a tunnel kiln, and fill the bill for less maintenance at less cost, less worries, and better production.

Gladding, McBean Stock on New York Exchange

Gladding, McBean & Co. was listed on the New York Stock Exchange as of November 18. Listed were 1,725,000 shares of $5.00 par capital stock.

Shares of the company will continue to be traded on the Pacific Coast Stock Exchange. The ticker symbol GLD will be used by both exchanges.

The company produces a wide range of products ranging from clay pipe and refractories to china, with ten plants in operation.

The company has reported record sales and earnings for the first nine months of 1957. Sales in that period increased 8% to $27.1 million with a 10% increase in net income to $2.65 million.

Net sales in 1956 for the year were $33.5 million with net earnings of $3.3 million.

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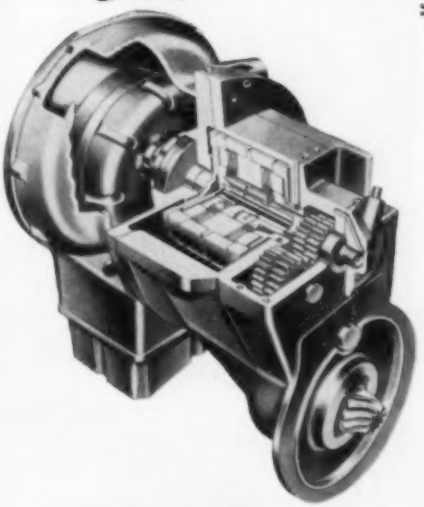

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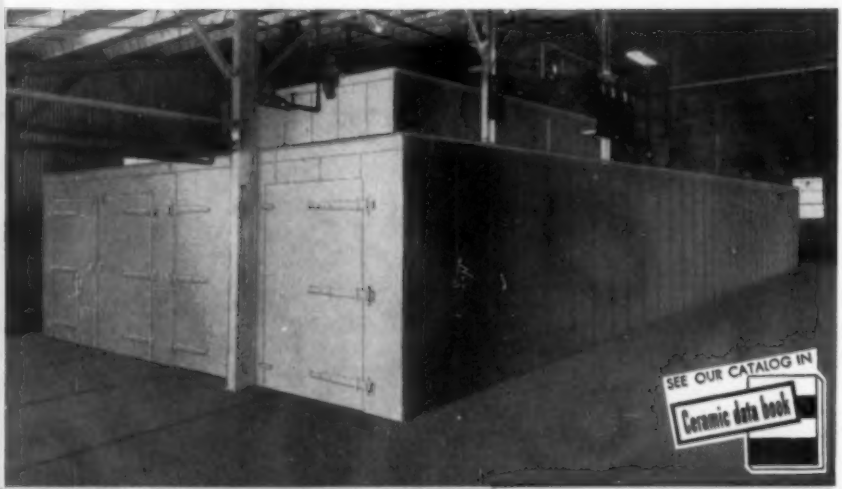

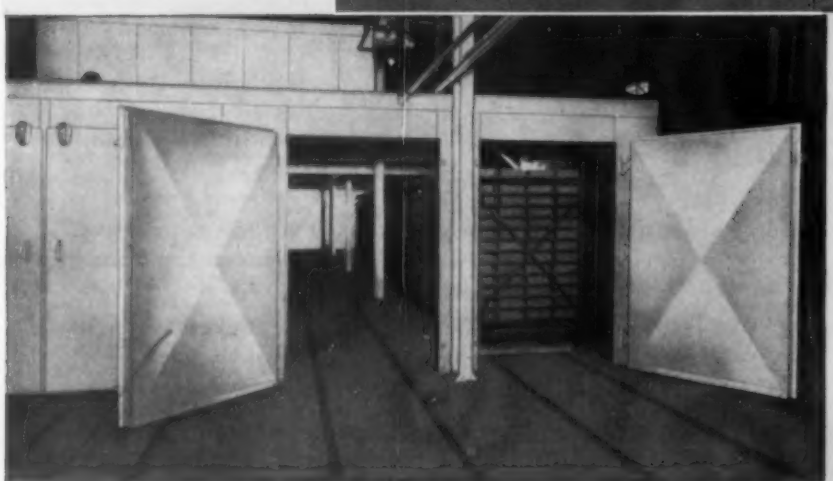

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Are We Taking Enough Profit?

Are brick makers taking too low a profit on their production? What do other companies take as a fair profit on their operation? Should we raise our own profit level?

By
C. W. Kraft
The Kraftile Co.

The title suggests—but I disclaim any knowledge—of the specifics of the face brick industry. What I have to say on this subject is based on fundamentals that apply to any industry.

If I were to ask you, who are brick manufacturers, what the purpose of your business was you would understandably very likely answer "making brick" but I submit to you that the real purpose can be summed up in the abruptly worded motto I once saw gracing the wall of a fellow's office, "make a profit—anything else is baloney."

Unless you can do as well on the money that is invested in your business as you could do were it invested in someone else's, you would be well advised to sell out, invest your money elsewhere, go get a job with someone else and let him pack most of the worries.

Actually, of course, it is not that easy because you are not very likely to be able to get your money out of an unprofitable enterprise and furthermore you've been steeped in this business so long you wouldn't leave it anyhow—and I know how you feel about it because I have found a fascination in this business that 21 years of fighting its problems and frustrations has not diminished.

Concept of Profit

Nevertheless it won't hurt to take a look at the concept of profit as a planned part of your budget rather than to look forward to it hopefully as that which is left over when you have paid all your expenses. Profit can and should be provided for just as payrolls. The fact is it provides both the compensation for capital used in the business and, particularly in the case of the small firm, funds for growth.

What's a Fair Profit?

The question of what constitutes a fair profit varies with the company and the industry but one thing we all have in common is that we are users of capital. If you are a relatively small manufacturer and have borrowed money recently you are paying about 5½% interest.

In my opinion you should expect to net double that on the capital you have invested in your business if you expect to average as well, considering that we are in an industry that experiences rather wide fluctuations in volume and profitability, as well as to compensate you for the risks involved.

Since we are in an industry that roughly takes one dollar of investment per dollar of annual sales volume and since Uncle Sam takes one-half of our operating profit, if we are going to do right by our stockholders or ourselves as owners we should be shooting for not less than 20% on sales before income taxes.

If this sounds fantastic we just have had our sights too low. Consider General Electric which has announced that henceforth its operating decisions will be based on a policy of making 20% on their investment **after** taxes. A number of other large corporations operate on a similar high profit plane.

Maybe we cannot expect to reach that in our industry with small operating units so let's take a look within our own industry. This violates no confidence since the information is public but Pacific Clay for a number of years has averaged 20% before taxes or better on their sales and Gladding, McBean is not far behind.

The problem with the rest of us is that we do not produce enough value in sales per worker employed. CERAMIC INDUSTRY magazine is reported as saying that sales volume produced per factory worker in the stone, clay and glass industries is $13,060 per year compared with a national average of $17,600. Here's where face brick may provide the answer:

Assume an annual production of
15,000,000 brick
@ $40 per M

$600,000

Assume likewise an investment of
$600,000
20% profit before taxes

$120,000

divided by 15,000 M brick = $8.00 profit before taxes needed per M brick produced or 20%.

If, however, we were able to convert this production to face brick at $60 per M, sales would be $750,000 per year and the profit requirement would drop to 13% of sales since our yardstick is the relationship of profit to invested capital. This sounds a bit more obtainable.

Whatever the difficulties, it is certain that the profit needs of small business is no less percentage-wise of their invested capital and we need to do all we can to improve in this respect if we are going to keep up with the challenges of the future.

Up-grading product is one way, not to overlook improved man-hour productivity, cost reduction and better recovery of saleable product.

We need them all.

Profit: Incentive and Responsibility

We have learned, sometimes the hard way, that business, if it is to be successful and enduring, must be operated within the framework of public interest . . . but I hope we never kid ourselves that we are operating for the public interest per se.

Our first responsibility is profitable operation. That is the simple and perfectly honorable purpose underlying any economic endeavor. As employees of the owners, it is our job to return a profit. We are custodians of their money, charged with the duty of seeing that it earns and grows. All our secondary responsibilities hinge on profit.

Dr. Leland I. Doan, President
The Dow Chemical Co.

Lightweight

Editor, BRICK & CLAY RECORD—A director of this company, Mr. R. R. Selkirk, will be visiting the United States . . . during June and July, 1958. Mr. Selkirk will be particularly interested in lightweight ceramic blocks, complete ceramic home construction and sintered aggregates.

We would greatly appreciate your advice as to SCPI and SCPRF activities during the above period, and any other information to help with the arrangement of Mr. Selkirk's itinerary.

Ian D. McCoy, Secretary
James Selkirk Pty. Ltd
Howitt St., Ballarat
Victoria, Australia

Ed. Note: We've already suggested some items for the Selkirk itinerary but thought some of our readers might like to get in touch with him if they'd like to offer suggestions concerning their own operations.

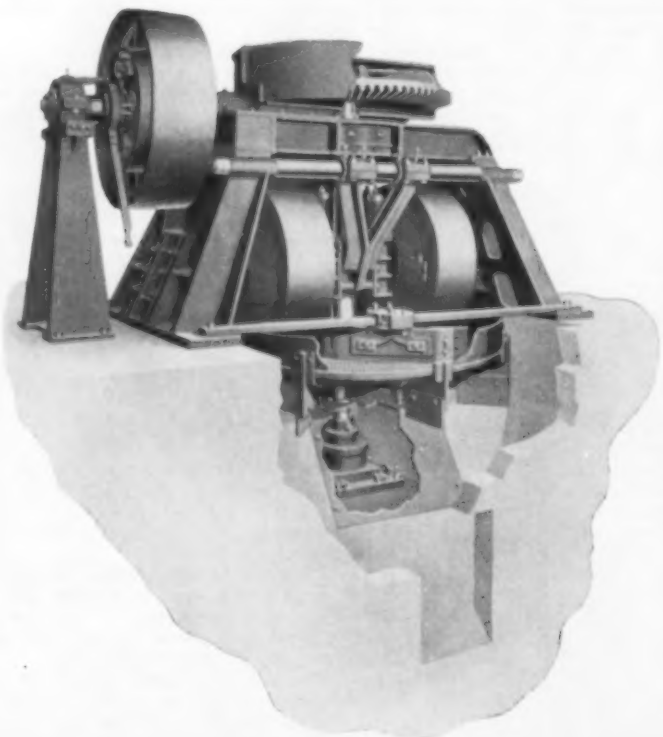
Panel House

Editor, BRICK & CLAY RECORD — We have read with much interest your article in the October issue . . . regarding a brick house erected in 8½ hours from SCPRF-developed panels, prefabricated at the Geneva, Ill., laboratory.

We would like to know if it is possible for us to obtain any further detailed information regarding the project, as we are at present investigating a somewhat similar development to compete with certain types of concrete products which are making inroads into our industry.

M. R. Davies, Director
Brisbane Brick & Builders Supply Co
Brisbane, Australia

Ed. Note: Further details on the panel house of SCPRF can be had by writing to SCPRF at Geneva. Also, BUILDING CONSTRUCTION ILLUSTRATED in the same month (October, 1957) published an article on this subject that was more detailed from the construction standpoint. Any readers who want detailed information might well check into this issue.



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Steel Companies Predict 5% Drop in Output for '58

B. E. Estes, director of staff administration for U. S. Steel, recently estimated that company output would drop to "at least" 5% but below the 1957 total of 115 million tons, leaving expected 1958 output at about 109 million tons. The reason for the expected drop was given as reduction in inventory by consumers.

Another steel company predicted output of between 105 million and 112 million tons, based on first half expected production. On the other hand, President Avery Adams of Jones & Laughlin predicted 58 output of 115 million tons, about the same as in '57.

Indiana Products Co., South Bend, Ind., was selected as a foundry sales representative for the "Moto-Bug," power material handling unit made by Kwik-Mix Co., Port Washington, Wis.

Chisholm, Boyd & White Co., Chicago, Ill., manufacturers of brick and refractory compaction presses have announced the appointment of Phil Turner as Plant Manager.

Donald J. Hagen was named assistant engineer in the processing machinery department of Allis-Chalmers Mfg. Co., Milwaukee, Wisc.

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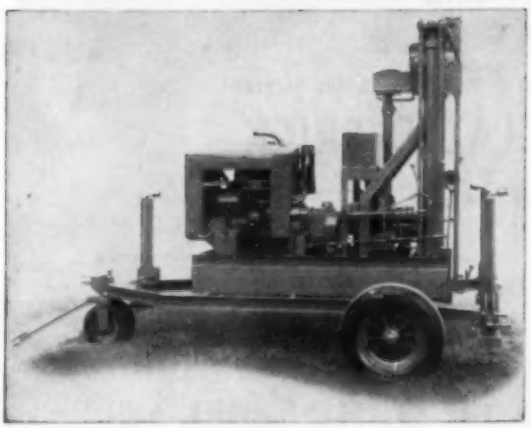

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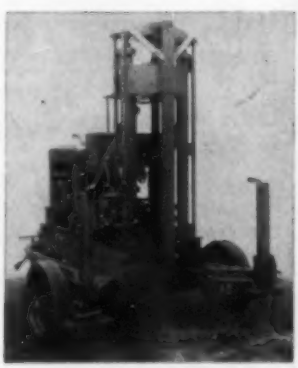

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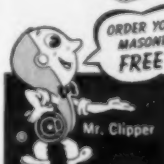

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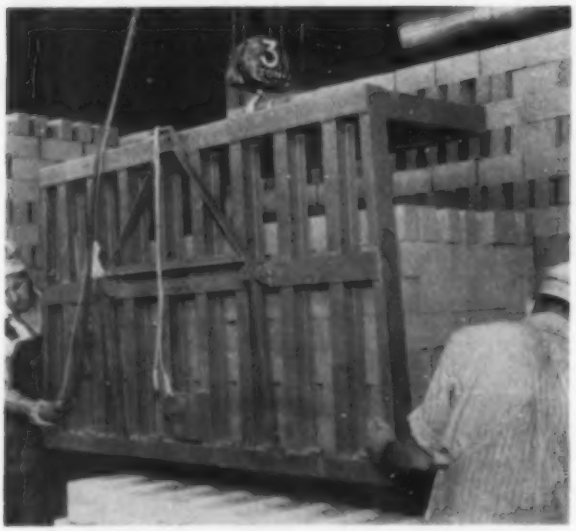

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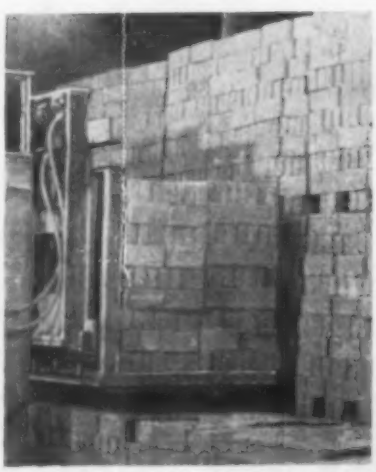

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The Eagle Standard Crusher shown is handling green brick rejects at Harbison-Walker Refractories, Clearfield, Pa. plant—one of the many Eagles installed at their plants. For raw clay or rejected bricks and shapes you can't beat Eagle Crushers.

Get the Inside Facts — Send for Bulletin 952.

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Neat Display Unit Promotes Ceramic Tile Veneer

An effective improvement in ceramic tile veneer display methods is this "slot rack," as developed by the Phoenix, Arizona showroom of Gladding, McBean & Co.

As shown, the display unit is simply an expansion of an old fashioned letter-rack, constructed of polished natural finish hardwood combined with Masonite. The slot fixture, which is 5 squares of tile high, accommodates 20 samples of veneer, stood neatly on end in the narrow slots of the step back fixture where around 60% of the surface of each tile is on display and the remainder can be easily examined by lifting the tile straight up.

The left half of the fixture is a single slanting panel, of dark brown Pegboard Masonite, for display of large sizes of the same tiles, leaning at a 10° angle which holds them firmly in place. A sample of tile with the Gladding McBean trademark and identifying the ceramic veneer shown is displayed just below eye level in the center.

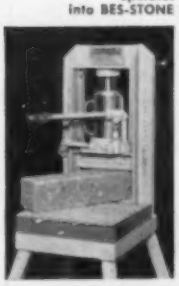
Undergoing a wave of prosperity which has been little affected by the current "tight money" situation, the desert metropolis has set new records for commercial construction in the past three years, and ceramic tile is becoming an important facet in lobby, corridors, and exterior constructions throughout the city. Ceramic veneer has been used in half a dozen new business buildings in the downtown district during 1956 and is prominently featured in two new suburban banks.

Front view showing operator feeding block into BES-STONE Block Splitter.

Make this your BEST year with the BES-STONE Block Splitter

Expand Your Opportunities — Cash in on the Split Block demand. Its "quarried stone" character pleases owners. You'll find it ideal for all structures, large or small . . . commercial, institutional or home construction. BES-STONE challenges the creative ability of both architects and builders.

BES-STONE Splitters — Automatic, powerful, hydraulic operation . . . up to 960 Split Block per hour. Straight line cuts . . . No cull block. Easily adjustable for splitting various block heights. Block is placed under knife, automatically. And the finished Split Block is automatically removed from under the splitting knife by the incoming block. Quiet, safe operation.



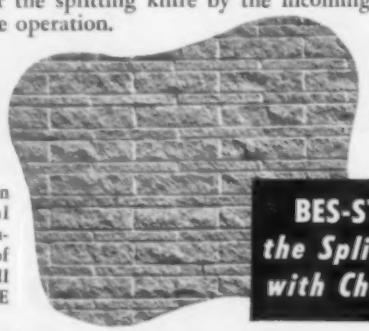
PONY BLOCK TRIMMER

Indispensable tool for on the job. Trims off the end of any block up to 8" by hand operated, hydraulic pump. Capacity 12 tons. Legs easily removable. Compact. Lightweight. Easily portable.

Fast, Accurate

Profitable Producer of 960 Split Block per Hour!

There's big money for you in attractive, permanently colorful BES-STONE Split Block. It complements and increases sales of standard stripper block. Get all the facts. Write for BES-STONE Bulletins 95A and 100.



Note the natural beauty of BES-STONE. No maintenance, no painting, no peeling off.

BES-STONE *the Split Block with Character*

BESSER COMPANY • Complete Equipment for Concrete Block Plants • Alpena, Michigan, U. S. A.

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B-27 mobile drill

SAVE TIME—This rugged combination earth auger and core drill lets you use a light-weight carrier for maximum speed and maneuverability.

It can be mounted on a tractor, barge or truck of only ½ ton capacity. The Mobile B-27 dismounts quickly and easily.

SAVE MANPOWER—One man can handle this fast-working drill and—*in less than 1 hour—auger through 75 feet of unconsolidated materials or take a 10′ core of limestone.* MOBILE'S husky hydraulic muscle responds instantly to give positive pressure—up or down.

SAVE MONEY—Engineering skill and thorough field testing have reduced moving parts to a minimum. Efficient power take-off cuts your initial investment and reduces maintenance problems.

George E. Gopher says:
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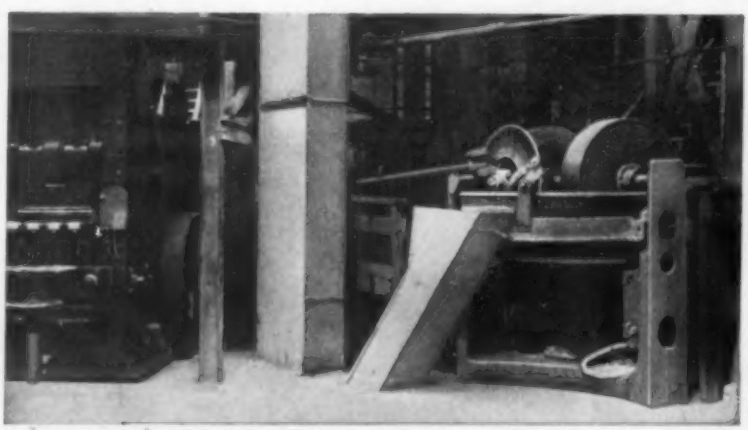
THE CLEARFIELD MIXER



No. 610 Clearfield preparing dry press material in fire brick plant.

Write today for Bulletin C-5 for complete information.

For Ceramic and Refractory Materials

In preparing clay materials for use in ceramic and refractory plants, the Clearfield Mixer with the revolving bottom is the most efficient and economical means of blending and tempering. Dry, semi-dry and high moisture content mixes are produced with thorough diffusion of all components of the batch. There is no segregation of larger or smaller parts. A uniform, even-textured clay mixture is produced with no lumps or voids. If you have a mixing problem, contact us for technical assistance.

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CLEARFIELD, PENNSYLVANIA

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PITTSBURGH 17, PA.

PINE HALL Continued

rial reduces the dependence of the operation on some scarcer clays.

Clay is moved from the storage bin to the production centers on a single conveyor of about 500' total length. As the conveyor passes each machine area, enough of the clay is removed from the system at that point to supply that machine and the balance of the load continues to the other machine.

Established in 1922

Pine Hall was established in 1922. It now owns the pipe plant plus a brick plant at Pine Hall, and a brick plant at Madison, N. C. General office and sales office are both at Winston-Salem. Company officers are Flake Steele, president; W. P. Steele, vice president. H. J. Duncan is general superintendent and Roy Carson plant engineer. The plant manager at the pipe plant is J. W. Craig.

The company's recent expansion was made to meet the demands for pipe by its customers, with the longer lengths being eagerly accepted by sewer contractors who find lower installation costs result from use of this pipe from Pine Hall.

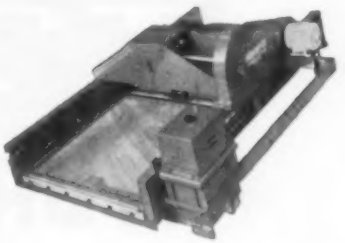
STAHLTON Continued

course crushed aggregate), the manufacture of large size units being strictly limited and impractical for reasons well known to every clay producer.

But clay tile has an imposing number of superior properties, and it is probably not unfair to suggest that there are many clay producers who still do not fully appreciate the superiority of their ware. Do they all know that it is stronger than concrete, that it provides much greater insulation against fire, heat and sound transmission, than does concrete? Do they know that it has much greater dimensional stability than any other commonly used building material, that it is chemically stable and inert, able to resist corrosion and erosion? Do they know in fact that it is one of the most durable of all materials known to science and man?

In short, a floor construction made of clay tile components is certainly physically superior to its structural equivalent in concrete, whether precast or sitebuilt. It should be noted that our use of the definition "clay tile components" must include lightweight aggregate of expanded shale, which is also basically terra cotta, thus has the same superior properties of clay tile, and is therefore one of the most serious competitors to clay tile, at least in the long run if not immediately.

Continued on page 95



No Production Absenteeism with the Leahy® Screen

You never worry about the working hours of the Leahy Screen with FlexElex® heating. It's on the job 8 hours or 24 hours a day . . . whatever you require.

Virtual elimination of down time is assured, not only because of FlexElex heating that keeps the mesh dry and wide open, but because of other refinements such as the over-size bus bars between jacket and outboard transformer. They completely eliminate the expensive maintenance burden of bothersome, time-stealing flexible connectors. When jacket changes are necessary, there are no special electrical connections to break and remake. Change time is therefore reduced to a minimum. Send for Bulletin 16-EH.

THE Leahy SCREEN
NO-BLIND VIBRATING
— offers —
INTEGRATED HEAT SCREENING

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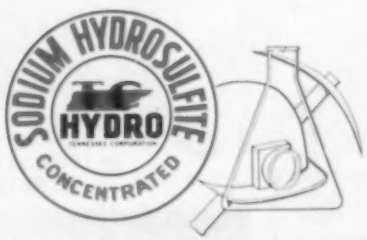
WHEN YOU NEED IT—

Our production is located in the heart of the Southeast which permits us to render over-night delivery service to most Southern points. Also small lot shipments are available from centrally located warehouses.



Phone, Wire or Write for literature and test samples if desired.

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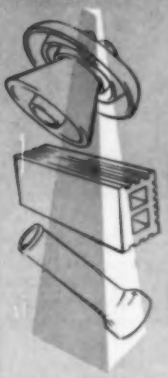
Symbol of an Industry



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Orton Cones have become an important part of every branch of the industry that has a firing problem by serving their vital purpose well. For over 60 years Orton Cones have come to be recognized as the reliable index in firing of all types of ware.

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Write today for the Temperature Equivalent Table and the free 56-page booklet PROPERTIES AND USES OF PYROMETRIC CONES. And, request information on how the proper use of Orton Cones can be beneficial to you.

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STAHLTON Continued

The principle of providing reinforcement by prestressing is also deliberately and wisely chosen because of the advantages contained. To the end user of the product (the owner) and to the architect it means less deadweight, lighter foundations, reduction in floor depth and thus also of overall building height, and less cost. To the builder it means no formwork, no steel cutting, bending, placing and wiring; it means less construction time, less labor and equipment at the job, less supervision, and so it means increased profits.

Why Prestress?

But most important of all, to the Stahlton plank manufacturer the use of prestressed reinforcement **means lower production** costs. The plank manufacturer can provide this prestressed reinforcement at considerably less cost than that of providing simple reinforcement in an equivalent precast beam.

There is no suggestion that this is a general statement applicable to all construction involving prestressing. Much to the contrary, it is only too well known that the placing and tensioning of prestressed reinforcement in most jobs today is still a very expensive business, precisely because when done in the field, mass production methods cannot be or are not applied to this work. The advantage referred to applies specifically to Stahlton manufacture by virtue of the special product design and the production techniques used in that case. This will become clear from the description of manufacture given later.

It should be understood too that the "planks" as fabricated in the Stahlton factories do not themselves represent the final load bearing components. The planks are in a sense only the "packaged reinforcement" and in the final structure they will resist only the tensile load in the composite section.

All Reinforcement Needed

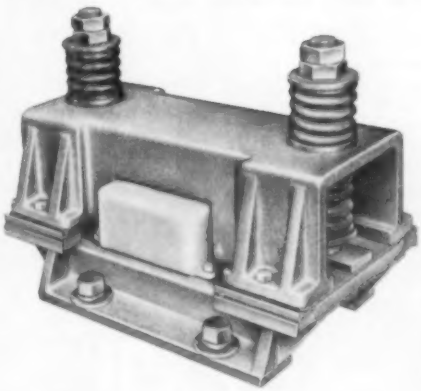
Yet these same planks contain ALL the reinforcement necessary in the floor. It is only when the planks are combined with the concrete poured at the site (i.e. on assembly) as required to form the upper "flanges" of the final structural tee sections, that a system of composite structural beams is created, load supporting and completely monolithic.

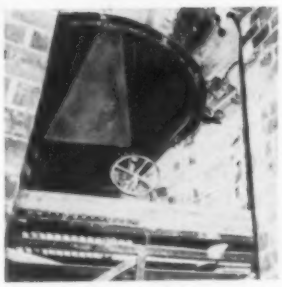
The planks are therefore themselves relatively lightweight (8 lb. per lin. ft.) and fairly flexible. Anyone who has seen prestressed concrete under a bending test will appreciate just how elastic this otherwise brittle material can be.

Continued on page 96

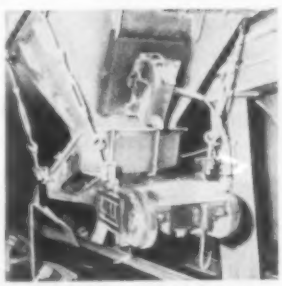
SYNTRON "Pulsating Magnet"

BIN VIBRATORS





on large damp clay bin



on hopper over feeder

Keep materials flowing to process equipment

SYNTRON Bin Vibrators help maintain production schedules by completely eliminating arching and plugging of materials in bins, hoppers and chutes. Keep even the most stubborn material flowing freely without damaging equipment. Their 3600 positive controlled vibrations per minute move materials economically, efficiently and safely — eliminate slow manual rodding and hammering.

SYNTRON Bin Vibrators are effective and dependable — built for 24 hour a day operation with low operating and maintenance cost.

Available in a wide range of sizes to handle from 1 cubic foot hopper to large bins and bunkers with a choice of electromagnetic, pneumatic or hydraulic power units. If you have a stuck bin, or a constipated hopper and chute problem consult our applications engineers. SYNTRON'S years of experience is at your service.

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designed to increase production, cut production costs, improve products

Vibrators (bins, hoppers, chutes)
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RP4580

SYNTRON COMPANY
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R. A. Ferreira Retires After 34 Years with Robinson

The clay products industry is losing one of its most dynamic and influential forces. And the loss will be strongly felt in Akron, too, which has been the residence and business headquarters of this industrial leader for 32 years.

Ralph A. Ferreira, general sales manager of the Robinson Clay Product Co., and one of its directors, has announced his voluntary retirement, effective Jan. 1, following a record of continuous service with the local clay products firm, that dates back to 1925.

Ferreira's retirement climaxes a long and colorful career in the clay industry—all with the Akron firm.

Started With Subsidiary

His tenure with Robinson Clay started when he joined the Eastern Clay Goods Co., a Robinson subsidiary. There he served as warehouseman, office manager, and branch manager, holding the latter post for six years, before coming to Akron as general sales manager of Robinson Clay in 1937.

Ferreira's career in the clay products industry is marked by many contributions, which contributed immeasurably to its growth and progress. He was one of the guiding forces in the organization of National Clay Pipe Manufacturers, Inc., of Washington, D. C. And over the years, his enthusiasm, technical ability, and intimate knowledge of the industry, earned him major roles on vital committees, both for National Clay Pipe Manufacturers, Inc., and Clay Sewer Pipe Association, the eastern regional group.

Ferreira's future plans are still indefinite, but he and his wife, the former Frances England, plan to relocate "back home" as Ferreira puts it, in his native New England, having purchased a home on Cape Cod.

For Services Rendered

R. A. Ferreira (left) is presented with a medallion, "in honor and appreciation" of his contributions to the National Clay Pipe Manufacturers, Inc., by W. E. Robinson, RCP President, who made the presentation on behalf of the national organization. The medallion is inscribed, "in honor and appreciation to Ralph A. Ferreira, one of the founders and continuous supporters of the National Clay Pipe Manufacturers, Inc., upon his retirement, 1957."

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THE "CEMENT GUN"® METHOD

The CEMENT GUN is simple to operate; two or three of your own men can learn quickly and easily, after which they can make all your refractories repairs. With the CEMENT GUN they can place a lining 1" to 6" thick in one continuous operation. They can make patches in a "hot" furnace. They can place up to 5 thousand pounds of refractory material an hour. The CEMENT GUN method saves down time, saves material and extends the life of your present linings. Write today for our FREE bulletin No. 3000-B and check our claims.

Write for Bulletin No. 3000-B Today!

CEMENT GUN COMPANY "GUNITE"® CONTRACTORS

1520 Walnut St., Allentown, Pennsylvania

Amvit Sells Plant to McLain-Porter

Operations of the American Vitrified Products Co. plant at Maple Grove, Ohio will be taken over by McLain Fire Brick Co., of the H. K. Porter Co. Refractories Div., according to a recent report.

The change in ownership was not officially announced by Porter but local sources reported the planned change.

Stahlton CONTINUED

The prestressed plank is the crux of the whole Stahlton system. Because this member is so light and easy to handle, it extends the geographical limits of the market available to any plant by making it profitable to ship planks distances of up to 300 miles, using them in combination with blocks produced at or nearer to the point of consumption.

The Stahlton system is therefore a combination of terra cotta (clay tile) —as a material, chosen for its superior physical properties, relative to price; blocks—as a system, providing a way to effect economic material disposition into a section; prestressing—as a method, to enable low cost production and complete standardization.

To Be Continued

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FOREIGN PATENTS PENDING

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. . . transforms 2000 second-grade bricks per hour — inexpensively — into NUMBER 1 ROCKFACE BRICK. Take an order one day, deliver it the next! Thousands of dollars per month "salvage" reported by brick manufacturers throughout the United States and Canada, who acclaim ROCKFACER the wisest investment they've ever made.

QUICKLY CONVERTS **CULLS** INTO **PREMIUM BRICKS**

ROCKFACER pays for itself in 90 days or less. Eliminates slow, costly, inaccurate hammer-and-chisel methods. Assures a straight-chipped edge for laying a neat course quicker. Simple and sturdy for long-life operation.

SEND SAMPLES OF YOUR BRICK . . .
Let us put them through the ROCKFACER, and return them immediately. YOU judge the new profit possibilities this ROCKFACER offers. Prices and specifications on request.

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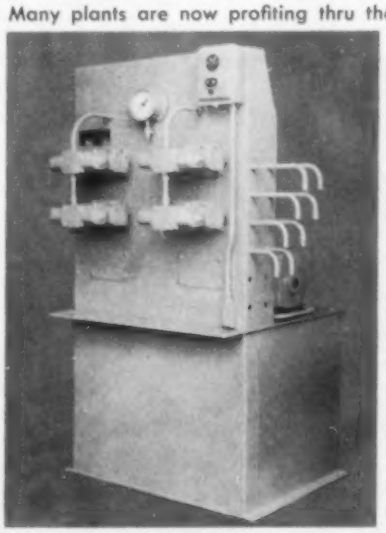

Loading Track Pusher Power Units

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ORDER SAMPLE PAIRS AT "PER-DOZEN" PRICES

Please send me samples of

- ☐ Glove No. G-9 ($16.50 per dozen pairs)
- ☐ Mitten No. 300 ($12.60 per dozen pairs)
- ☐ Hand Pad No. 308 ($7.20 per dozen pairs)

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Fast, smooth-rolling, trouble-free service is built into every Chase dryer car. Initial investment and maintenance costs are low. Chase equipment is used in 80% of clay products plants. Send your specifications and requests for literature to Chase.

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The Gravely LS Tractor — geared-down 5-HP, low-speed model, with dual wheels and governor — is the answer. It's small enough to work in crowded areas, yet powerful enough to move loaded cars up to 310,000 lbs. Toolholder fits coupling unit on cars. Two speeds forward and reverse allow operator to move cars in either direction.

But that's not all! The same Gravely, offering 30 different attachments, takes care of every grounds maintenance job, from mowing lawn areas to power sweeping loading docks and drives. Eliminates expensive equipment, saves time, labor, money.

Write TODAY for descriptive literature, or for Free Demonstration under your own conditions. No obligation.

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PERFORMANCE-PROVED SINCE 1922

SPECKLED BRICK

Foote EBONY Manganese is available in a variety of grinds and granulations to suit practically all your speckled brick requirements . . .

. . . *medium and small specks with lively gray background*
40 Mesh Ebony (approx. 95% thru 40 mesh)

. . . *small specks with lively gray background*
60 Mesh Ebony (approx. 95% thru 60 mesh)

. . . *many small specks with lively gray background*
80 Mesh Ebony (approx. 95% thru 80 mesh)

. . . *specks measuring 1/16" to 3/32"*
40 x 60 Mesh Ebony

. . . *specks measuring 1/16" and smaller*
60 x 80 Mesh Ebony

Carefully controlled screen analysis assures uniform results . . . helps you get the speckled effect you want . . . everytime!

Write for complete details on Ebony Manganese Ore, Petalite, and Foote's many other ceramic materials.

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Control Handle at Rear of Burner Adjusts Flame Pattern

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140, 200, 400 Mesh Sizes

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Crane-Excavator

Detailed information concerning specifications, features, operating data and capacities of the Bantam ⅝ cu. yd. 7-ton self-propelled unit, is described in a new bulletin. Bulletin No. Cr-502. Schield Bantam Co., Waverly, Iowa.

Sweco Separator

A new illustrated catalog describes the new 30" Sweco Vibrating Screen Separators, which rounds out the company line giving an intermediate size between the 18" and 48" diameter units. Bulletin S-574-1, Southwestern Engineering Co., Los Angeles, Calif.

Portable Melting Furnace

A flyer describes Hauck's 25-gallon capacity, portable compound, melting furnace. It melts and heats all kinds of joint compound for sewer and water lines. The unit is kerosene burning. The folder is illustrated and contains its specifications. Hauck Mfg. Co., Brooklyn, N. Y.

Torque-Transmission

Bulletin 1399, an attractive, well illustrated 4-page booklet, describes the all new Baker Duo-Torque Transmission, and is now available upon request. The Baker-Raulang Co., Cleveland 2, Ohio.

Centrifugal Pumps

Now available are two-stage pumps that meet the requirements of heavy-duty pumping jobs. GT pumps are built in 6 basic sizes ranging in capacities from 100 to 3500 gpm, pressures to 450 psi, heads to 1100 ft. and temperatures at 300°F. They are horizontally split to permit complete accessibility of all internal parts without disturbing the suction and discharge piping. Bulletin, Form 7062-C, fully describes in detail the many Class GT pumps. Ingersoll-Rand, New York, N. Y.

Buffalo Forge Co., Buffalo, N. Y. announced the promotion of J. Barrie Graham to Director of Research. Graham has been with Buffalo four years.

Hauls 1½-tons with hopper or platform

Meet the new Kwik-Mix R-18 Moto-Bug that economically hauls up to 3000 lbs. — and climbs 25% grades fully loaded. It has direct drive to power-flow transmission — no shifting or clutching. Travels up to 12 mph. forward and reverse. 18-cu. ft. hopper interchanges with 42 x 54-in. platform. Other attachments: special tailgate hopper body, 7-ft. fork lift, 5-ft. scraper blade, and towing hitch.

Lifts ¾-ton load to 7-foot height

Fork lift attachment lets you use labor saving R-18 Moto-Bug for lifting, stacking, loading, unloading. It lifts 1500 pounds (at 15-in. load center) — has 7-foot lifting height. Hydraulic power raises and lowers load. Mast can be tilted back 10° when carrying load, 2° forward for pick-up or releasing load. Forks are 24 inches long — and adjustable 6 to 32 inches wide. Also check on S-10 Moto-Bug with multiple attachments for smaller jobs. Ask your Kwik-Mix distributor about both sizes, or write to us for Moto-Bug® bulletin.

KWIK-MIX CO., Port Washington, Wis. *(Division of Koehring)*

Send literature on: ☐ R-18 ☐ S-10 Moto-Bug.

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NEWS OF TRADE

Personnel Changes, News Events, Obituaries Concerning Industry Equipment Suppliers.

Three appointments involving **Hyster Co.**, Portland, Ore., and Danville, Ill., were announced. Robert F. Moody, domestic sales manager, in charge of industrial truck sales in the United States, Hawaii, Alaska and Canada; Raymond L. Howerton, sales promotion manager, Portland plant; and Dr. Johnson, development program head.

The **Action Equipment Co.**, Stockton, Calif., now handles sales and service of products by Koehring, Parsons and Kwik-Mix, all divisions of **Koehring Co.**, Milwaukee, Wisc.

Yale Materials Handling Div., **The Yale & Towne Mfg. Co.**, Philadelphia, Pa., has named the Cardinal Carryor Co., with main headquarters in Louisville, Ky., as franchise sales and service representative for industrial lift trucks in Evansville, Ind.

William L. Little was elected Chairman of the Board and President of **Bucyrus-Erie Co.**, South Milwaukee, Wisc., by the Board of Directors.

Three new distributors for **Baker-Raulang Co.**, Cleveland, Ohio are Huss Equipment Corp., Cleveland, Ohio, Wilson Industrial Equipment, Inc., Miami, Fla., and Clark Materials Handling Co., Harrisburg, Pa.

The number of standardized cylinder selections offered for delivery will be boosted from 8,000 different combinations to more than 14,000 by Miller Fluid Power Div., of **Flick-Reedy Corp.**, Melrose, Park, Ill.

The Robert J. Wylie Co., St. Paul, Minn., has been appointed as a sales representative for public utilities and special industries in Minnesota by **Koehring Co.**, Milwaukee, Wis.

The Pacific Builders Supply Co., Portland, Ore., was appointed a Construction Distributor of **Kwik-Mix Co.**, Port Washington, Wis.

Former assistant treasurer of the **United States Borax & Chemical Corp.**, Los Angeles, Calif., Raymond C. Dosta, was promoted to treasurer, succeeding R. F. Steel.

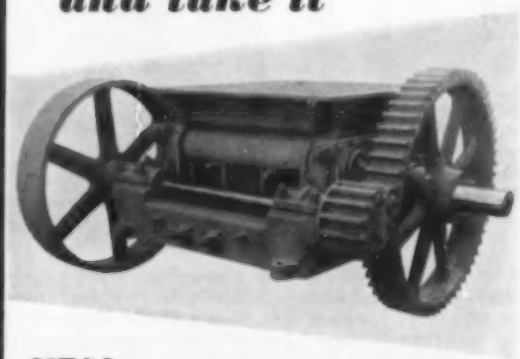
Metal & Thermit Corp., New York, N. Y., announced the appointment of John A. Peterson to Supervisor of Technical Service—Ceramics.

Three recent elevations within the financial section of the **Frank G. Hough Co.**, Libertyville, Ill., were: Robert L. Smith, secretary and treasurer; Frank M. Docauer, assistant secretary; Fenton O. Richards, controller of the company.

School Booklet Available

"A Citizen's Planning Guide to Low Cost School Construction" has been published by the Allied Masonry Council and is available to MCAA chapters in limited quantities free. The 28-page booklet is intended to tell masonry's story to school board members, PTA officers and public officials concerned with school construction.

built to stand up
and take it



MECO Single-Roll Crushers are the recognized leaders in the field. They are ruggedly built to do the job of reducing shales, fire clays, rock, and grog.

Renewable-tooth rolls, safety breaking plates, reversible wearing plates, substantial frames and gears, oversize bearings—these are but a few features of this MECO Crusher.

Ask for full details.

The Manufacturers Equipment Co.
218 Madeira Ave. ▪ Dayton 4, Ohio

The Demand Is Increasing For
GRAY BRICK and RICHER DARK RED SHADES

"NATIONAL" MANGANESE

Turn Buff and Light Clays Gray

Flashes Red Clays to Dark Reds, Blacks and Gun Metal Shades

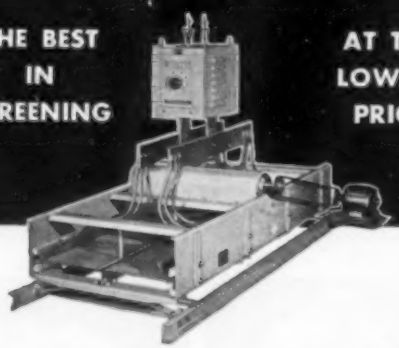
Write for information.

NATIONAL PAINT & MANGANESE CO.
Division of Haile Mines, Inc.
Lynchburg, Virginia

UNIVERSAL

THE BEST IN SCREENING

AT THE LOWEST PRICE



The Most Modern and Efficient Electric Heating Equipment

SURPRISINGLY LOW IN COST

Be sure to get the facts regarding the new improved Universal Screens and Unilec Heating! Just ask for catalog #150.

UNIVERSAL VIBRATING SCREEN CO.
Racine, Wisconsin
Quality Screens Since 1919

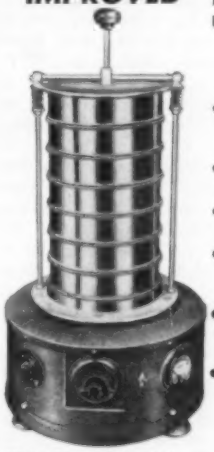
SYNTRON

TEST SIEVE SHAKERS

for faster, more accurate analysis of industrial materials

NEW, IMPROVED

The new, improved SYNTRON Test Sieve Shakers provide quick accurate separation of industrial materials with more positive control of components.



Featured improvements

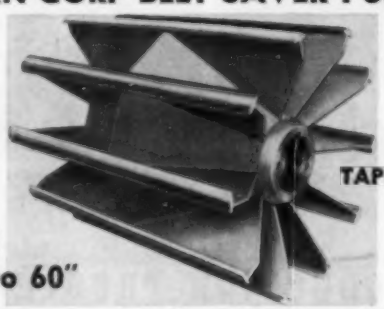
- Larger, more powerful electromagnetic drive
- Rheostat voltage control
- Reset timer for accurate time testing
- Voltmeter to obtain comparable tests under identical conditions
- Holds six standard 8-inch test sieves and bottom pan
- Operates from 115 volt, 60 cycle a-c.

Write for complete information on SYNTRON Test Sieve Shakers — TS0258

SYNTRON COMPANY
620 Lexington Avenue Homer City, Penna.

STOP BUILD-UP

USE
VAN GORP BELT SAVER PULLEYS



SIZE
8" to 60"

VAN GORP SELF CLEANING PULLEYS

STOP BUILD-UP

Van Gorp Self Cleaning Pulleys offer individual wing construction that prevents any material build-up between the belt and pulley. Self cleaning cone design automatically discharges foreign material to the sides of the pulley. It is no longer necessary to spend valuable time cleaning material from the belt or pulley. Van Gorp Pulleys stay clean and insure proper belt alignment. Reduce your maintenance cost! Be sure you specify Van Gorp Belt Saver Pulleys with Dodge TAPER-LOCK bushings on all your conveyors or bucket elevators.

WRITE FOR *FREE* CATALOG
OVER 3,000 Standard Sizes

Van Gorp Mfg. Inc.
BOX 123 • PELLA, IOWA
TELEPHONE MAyfair 8-2140

Oily and Wet conditions can be tough on conveyor belting

TON TEX

. . . but not on TON-TEX OIL-EX BELTS

OIL-EX Conveyor Belting gives outstanding service on oily and wet installations. It is made of plies of tightly woven cotton duck and a binder of Neoprene and special compounds.

Oil-Ex is highly resistant to oil, water, kerosene, heat and abrasion. Minimum stretch and shrinkage. Seldom requires "take-ups." Will not mark surfaces of finest quality face bricks. Oil-Ex can be vulcanized endless.

Ton-Tex Oil-Ex is widely used for *off-bearing* and *measuring* belts. It operates better and lasts longer.

Write for catalog showing Ton-Tex installations in various industries.

TON-TEX CORPORATION
GRAND RAPIDS 2, MICH.
ENGLEWOOD, N. J. SAN JOSE 26, CALIF.

TON-TEX CONVEYOR AND TRANSMISSION **BELTING**

A. E. Williams Named Robinson GSM

A realignment of the sales department of the Robinson Clay Product Co., Akron, Ohio, and the voluntary retirement of R. A. Ferreira, a Director, and general sales manager for the past 20 years, have been announced by W. E. Robinson, president.

Robinson Clay, currently in its 102nd year, is one of the nation's oldest and largest manufacturers of vitrified clay pipe, refractories and pottery.

A. E. Williams, who has served as sales manager of the Vitrified Division since 1949; has been promoted to general sales manager, succeeding Ferreira; P. V. Robinson, Jr., resident manager at the Rochester, N. Y., Branch, replaces Williams as sales manager of the Vitrified Division; and Edward B. Mogenhan becomes Rochester Branch Resident Manager.

The promotions, all within the Company, are effective Jan. 1.

Ferreira's retirement climaxes a long and colorful career in the Clay Industry—all with RCP. His tenure with RCP totals 32 years.

Williams, too, has had a wide and varied career in the Clay Industry, dating back to 1916 when he joined RCP's Jamaica, Long Island, N. Y., Branch as an office boy and clerk. After a two year service hitch, he returned to the Jamaica Branch in 1919 as a salesman, before being transferred to the Albany, N. Y., Branch in the same capacity in 1921. Ten years later, Williams moved on to the Bloomfield, N. J., Branch as resident manager; then to the Toronto, Ontario, Canada, Branch in 1938 as secretary and resident manager.

He was named Resident Manager of the Indianapolis, Ind., Branch in 1941; before being transferred to the general office in 1950 as sales manager of the Vitrified Division. In 1955, his duties were increased to include that of sales manager of the Refractories Division, as well.

P. V. Robinson, Jr., has been associated with Robinson Clay since 1948. After attending Amherst College, he worked out of the Buffalo, N. Y., Milwaukee, Wis., and Chicago, Ill., areas as a pottery salesman for three years. He was transferred to the Philadelphia, Pa., Branch as Vitrified Division salesman in 1951 and was promoted to resident manager of the Rochester, N. Y., Branch in 1954.

Mogenhan's tenure with Robinson Clay dates back to 1953, all at the Rochester, N. Y., Branch as Vitrified Division salesman. A native of Rochester, he was graduated from St. Bonaventure University in 1950, and was associated with Otto Bernz Co. in sales and promotion, and with Carl Byer Associates in public relations, before joining RCP. He also took graduate work at St. John's University in 1952.

Ferreira

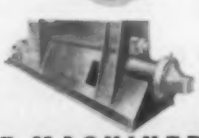
Williams

Robinson

Mogenhan

Call FERNHOLTZ First!
Fernholtz Machinery Co., 8468 Melrose Pl., L.A. 46

OL 3-2360



ELIMINATE PRODUCTION PROBLEMS BEFORE THEY OCCUR!

INTERNATIONAL Special Heavy Duty Dry Presses for brick, tile, refractory brick, insulating brick, and paving block, de-airing available.

INTERNATIONAL — Combined double-deck de-airing Auger Machine and Pug Mill, all-new features including all bearings accessible from outside machine — extruding brick, tile, sewer pipe.

CLEARFIELD muller mixers with dust hood, batch loaders and manual or air unloading, for clay, shale, talc bodies or similar materials.

FERNHOLTZ MACHINERY CO., 8468 Melrose Place, Los Angeles 46, California

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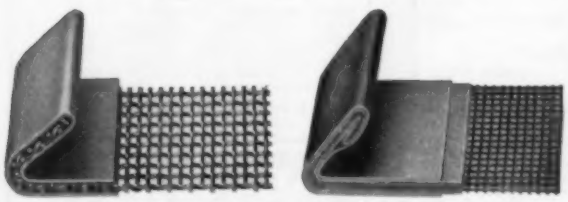
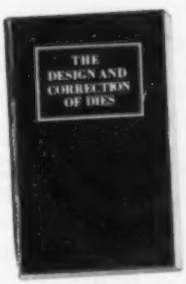
Tyler Screen Sections for All Makes of Screening Machines!



Screen sections of Tyler Woven Wire are fabricated for all makes of vibrating screens in any mesh or metal. They are made up with hook-strip or bent-edge construction to suit the machine on which they are to be used.

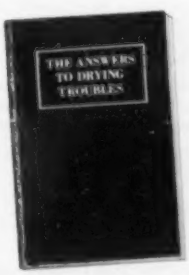
Tyler rugged, accurately-applied hook-strips make possible stretching and maintaining the screens at drum-head tension, which is essential for successful screening and long screen life.

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery
Canadian Plant—St. Catharines, Ontario, Canada



The Design and Correction of Dies Power laminations, smooth auger production, die construction are featured in this book. Here you will find the results of years of research and experience from all reliable sources to meet every phase of good extrusion — together with full coverage of chemical treatment and de-airing of clays. Price $0.75.

The Answers To Drying Troubles How to dry greater tonnages in less time at less cost is tied up in dryer construction. All drying problems are discussed and suggestions to aid in producing better drying and improved products. Price $0.75.



WRITE TO
INDUSTRIAL PUBLICATIONS, INC.
BOOK DEPT.
5 S. WABASH AVE., CHICAGO 3, ILL.

Classified Advertisements

Notice

New Classified Advertising Rates

Effective January 1, 1957

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale.)

TRANSIENT WORD ADS: 12c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $2.00 each insertion.

POSITION WANTED ADS: $1.50 for 25 words or less; each add'l word 10c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$15.00 per inch. On advance orders for twelve consecutive issues, 12.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

BRICK and CLAY RECORD

5 South Wabash Avenue, Chicago 3

WANTED — POSITION

GENERAL MANAGER OR SUPERINTENDENT—Thirty years' experience in production and marketing common brick, face brick and structural tile. Available at once. Address Box 1-RAX in care of BRICK & CLAY RECORD.

CERAMIC ENGINEER—B. S. Degree - Age 34. Seven years experience in research, development, quality control and plant work in refractories and sewer pipe. Presently employed but desires change. Address Box 1-RAL in care of BRIC K& CLAY RECORD.

POSITION WANTED—As superintendent or general manager of brick or hollow tile plant.. Have twenty five years experience and am capable of handling operation from clay pit through to the finished product. Can furnish best of references from former employers. Address Box 1-RAK in care of BRICK & CLAY RECORD.

WANTED—HELP

WANTED—Ceramist to head research and development work on specialty refractories. Good salary with special incentive plan. Previous experience preferred. Eastern Seaboard location. Address Box 1-RAV in care of BRICK & CLAY RECORD.

WANTED HELP—Salesman-Manufacturer of quality Face Brick and Glazed Tile needs experienced Brick and Tile salesman. Please submit complete personal data, including snapshot. All replies confidential. Robinson Brick & Tile Company, P. O. Box 1619, Denver 23, Colorado.

WANTED HELP — REFRACTORY EXPERIENCE excellent opportunity for sales minded man, must be willing to travel part time, aggressive and ambitious — Middle West location. Salary. State all qualifications. Address Box 1-RAA in care of BRICK & CLAY RECORD.

WANTED—HELP

WANTED

Sales Engineer

Refractories specialty company needs full time traveling representative. Must have ceramic experience. Salary.

Ipsen Ceramics, Inc.

Pectatonica, Ill.

WANTED USED CLAY MACHINERY—Large Dry Pan, Crusher, Vibrator Screen, Elevators and Conveyors. Must be cheap. BOOZ & CO., phone Temple 3-4119, P. O. Box 92, Macomb, Illinois.

FOR SALE—USED EQUIPMENT

Rails—24" Gage Dryer Cars

Single and Double Deck in Stock
We also carry a large assortment of pallets in stock.
All Sections of New as well as Used Rail. Good Serviceable Condition, together with Spikes, Bolts, Turntables, etc.
Also Brick, Tile, Pottery Machinery carried in stock.

Wire, Write, or Phone

M. K. FRANK

New York City, 480 Lexington Ave.
Pittsburgh, Pa., 401 Park Bldg.
Reno, Nev., 105 Lake Street

CRUSHERS, JAW—7½ x 13 Champion, 20 x 4 Farrel, 15 x 24 Traylor & 15 x 24 Diamond Primary portabl plant.

CRUSHERS, ROLL—24 x 24 L.B., 30 x 30 Jeffrey single, 18 x 24, 30 x 16 smooth, 18 x 16, 24 x 12, 24 x 18, 30 x 16 Disintegrating.

DRY PANS—7½ American, 9' Bonnot, 9' Stevenson, w/motor drives.

SCREENS—3 x 5 (1) Universal (new), 3 x 5 (1) & 3 x 10 (2) Tyler Hummer, 3 x 10 (2), 42 x 10 (2) Cedar Rapids, 4 x 20 Rotary, 5 x 12 (2) Robins eliptex.

HAMMER MILLS—M20 Quaker City (7½ HP) new, Mikro 2 81 (10 HP), Williams AKB (25 HP), Jeffrey 36 x 42 (125 HP), Penna. 8XT13 (350 HP synchronous).

PUG MILLS—7" Steele, 9' Freese, 10' Chambers double shaft, 15' Granulators Freese & Chambers.

BRICK MACHINES—Brewer 9B, International 470, Bonnot #30 & Bonnot de-airing 18" Auger (w/new spare parts).

CUTTERS—Automatic Freese C20, C25, Steele 18 (10" belt), Steele 14B w/14" Belt, 2 spare reels.

DRYER CARS—225 single deck 35 x 84, guage 24"

LAWLER COMPANY

Metuchen, N. J. Liberty 9-0245

FOR SALE—Steele No. 18 Automatic Side Cut Cutter, right hand, equiped with standard brick reel and measuring table, 10" belt. Good second-hand condition. Price $800.00, loaded on car or truck our plant. Quaker Sales Corporation, Johnstown, Pa.

MACHINERY BARGAINS

DRY PRESS Boyd Model BB including 10 H.P. Motor and Drive.

COMBINED MACHINE STEEL No. 5, Steele and American De-Airing Combined Machines. International 470.

BRICK CUTTERS Steele and Freese Automatic.

SEWER PIPE PRESSES Pearne Lacy Hydraulic including dies 6 to 15", Tappin Rice including dies 8 to 24".

FERNHOLTZ MACHINERY CO.

8468 E Melrose Place

Los Angeles 46, California

WANTED—USED EQUIPMENT

FOR SALE

Brick Reel

Steele #18A, left hand, 18 cuts, 2⅜" green cut. Platen plates 9⅞" long, 5" high, 1/16" gap for 16 Gauge wires.

Norman-Roman Reel

Steele 18 C, left hand, designed to make side cut Normans and Romans on the same reel. Cuts 11 Normans 2⅜" green and 16 Romans 1⅝" green. Platen plates 13" long, 9" high, 1/16" gap for 16 Gauge wires.

These reels are complete with carriages. They are surplus equipment in excellent operating condition.
Price $750.00 Each. (½ of new price)

ROBINSON BRICK & TILE CO.

500 SOUTH SANTA FE DRIVE

DENVER, COLORADO

FOR SALE

New, Sergel Screen Heating Transformer—10 KVA—440 volt Primary, 1½ to 5½ volts secondary—$395.

Address Box 1-RAG in care of BRICK & CLAY RECORD

1—30" x 10' Apron Feeder with hopper.
DRYER CARS—Single deck 24" gauge.
DRY PAN—Clearfield, good as new.
TRANSFER CAR—Battery powered, 2 track. New.
CRUSHER—McLanahan 18" x 24".
BRICK & TILE MACHINE—Chambers Royal de-airer.
CUTTER—Steele 18B, extra reels.
SCREEN—Hummer 4' x 10' Type 38.
REPRESS—Bonnot Special, rebuilt.
APRON FEEDER—24" x 10'.
BALL MILLS—6' x 8', 6' x 10' direct drive.
PALLET CARS w/pallets, rolled edge. 10"x29½".
MIXERS—Simpson & Clearfield.
NEW & USED rebuilt equipment for brick tile and clay industry.

HERMAN A. HALL

Wyomissing, Pa. FRanklin 24310

FOR SALE

BRICK MACHINES—All types
PUG MILLS—Single & Double Shaft
GRANULATOR—Freese P10, Chambers No. 51
AUTOMATIC CUTTERS—Steele 18, American 408, Freese C-20 & C-25, End Cutter
HAND CUTTERS—Steele 50 Board Delivery

10 CU. FT. PATTERSON-KELLEY TWIN SHELL BLENDER

DRY PRESS 4 MOULD—Boyd "Special"
DRY PANS 7' & 9'
HAMMER MILLS — Jeffrey 20x24, 36x42, 9x15, Miller 17"
SMOOTH ROLLS—Chambers 16x30, 18'x24"
CONICAL ROLLS—Brewer 22", Chambers 33"
DISINTEGRATORS — Chambers 16", 24", Steele 12", 18"
JAW CRUSHERS—15 x 24, 30 x 4, 30 x 36, 30 x 36, 56" x 72"
PULVERIZERS—Williams Comet Dust Mill
ROTARY DRYERS & KILNS
DRY MIXERS—Lancaster EBQ-3, EAG-3, EAG-4, Clearfield #610
SCREENS—Hummer 3 x 5 & 4 x 5 Single, 3' x 10' Double, Selecto 3 x 6, Slip Lawns, 42" x 10' Cedar Rapids
REPRESS 2-MOULD—Bonnot "Special" & International Victor
CLAY FEEDERS—Disc 60", Steele Even, 36" Reciprocating, Apron
DRYER CARS—200 Single Deck 24" gauge
TURNTABLES—72" Transfer Cars
SIDE DUMP CARS—3 yd. 36" gauge, 1 yd. 24"
PEBBLE MILLS—30 x 42", 4 x 5', 6 x 8', Hardinge 7' x 22", 7' x 48", 4½' x 10".
BALL MILLS—Hardinge 6' x 22", 6' x 36", 10' x 48", 2' x 6", 5' x 21' Tube Mill
STEEL PALLETS—10 x 24", 10 x 41", 14 x 39"
SLIP PUMPS—3 & 4 Cylinder
FILTER PRESSES—13, 32, 60, 70 Leaf
SAGGER PRESSES—#2 Crossley with Dies
KILNS—Decorating, high Fire Glass, & Lehr

ROBERT L. CLARE

PERTH AMBOY, N. J. Phone Hillcrest 2-6061

FOR SALE—USED EQUIPMENT

WALTER C. STOLL & SONS
New and Used
CLAY WORKING MACHINERY
5028 Alhambra Ave., Los Angeles 32, Calif.
CApitol 2-1141

COMPLETE AUTO DRY PRESS PLANT
Desired Rawdon PIPE MACHINE
Berg, Boyd 4 mold, Gates 2 mold DRY PRESSES
BRIC MACHINES DEAIRING: Steele 40, Bonnot 497, Amer 404A & 220, FRH WJ6, Chambers 9C. Many others.
5', 7' and 9' DRY PANS. 10, 12 & 14' PUG-MILLS.
MILLS: 3x8, 8x8, 6½x6, 6x15, 7x24 Ball, 3½x7 Rod Gruendler #1, 3XE, Univ #1, #3, Hammer, 28P Mikro, Kent #7.
DRYERS: 4x20, 5x24, 5½x40, 6x30, 7x30, 8x70.
CUTTERS: Steele #18, Chambers 22, Amer 498B.
CRUSHERS: Steele 1232, 1632, Brewer conical 18x22. McLanahan 1830 sgl. roll.
CONVEYORS: 20x60, 24x90, 36x150, 42x160.
Repres: Bonded Scale & Machine Co.
MID-CONTINENT EQUIPMENT CO., INC.
8321 Gannon St. Louis 24, Mo. WYdown 1-2826

FOR SALE

PEBBLE MILLS: Batch & Continuous, Hardinge 10' Dia. x 96", 8' x 10', 6' x 8', 6' x 5', 5' x 6', 4'6" x 12'.
BALL MILLS: Patterson 5' D x 22' L; Allis Ch. 7 x 24' Compeb.
ROTARY DRYERS: 9' x 30', 6' x 50', 4'6" x 40', 4'6" x 32', 4' x 30', 3' x 15'.
INTENSIVE MIXER: Simpson #3P.
11—C. I. P. & F. Filter Presses, 7" x 7", 24" x 24", 30" x 30", 36" x 36".

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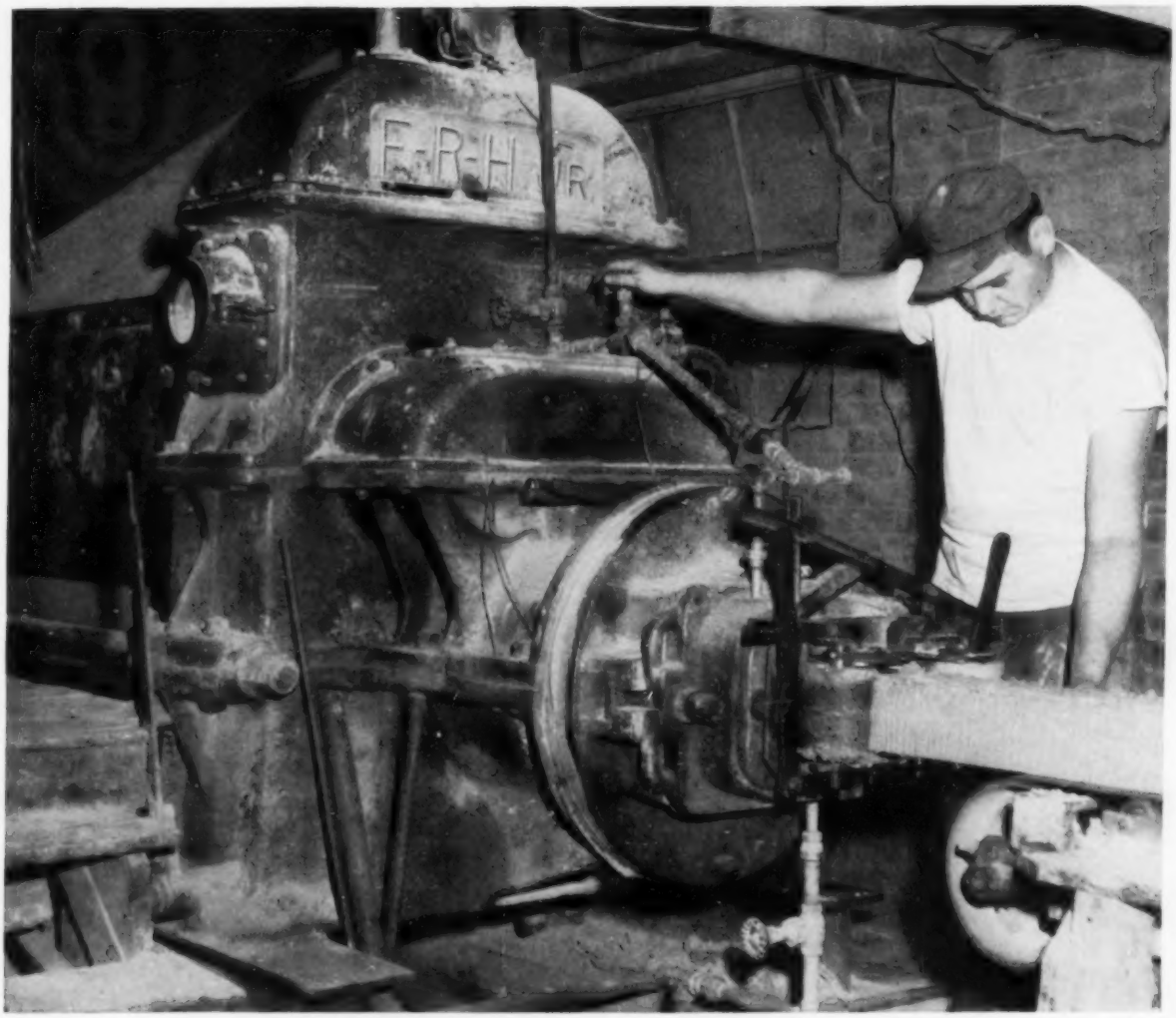

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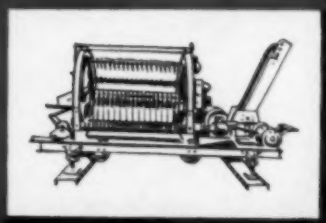

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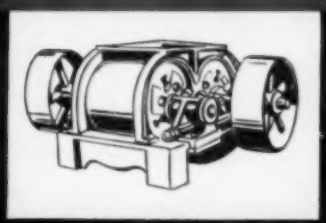

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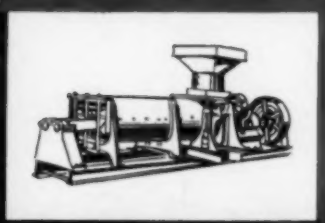

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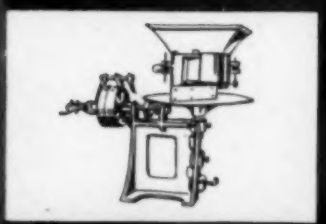

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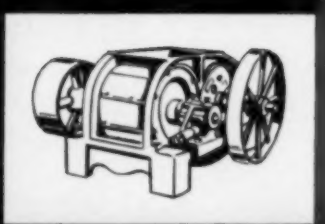

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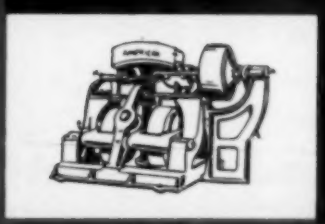

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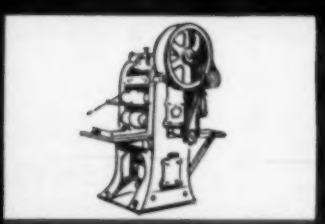

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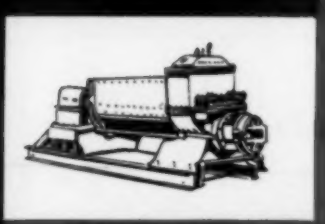

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